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14 February 1980

# East Europe Report

ECONOMIC AND INDUSTRIAL AFFAIRS

No. 1980



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## CZECHOSLOVAKIA

### BRIEFS

NORTH MORAVIAN AGRICULTURAL PLAN--The 1980 agricultural plan for the North Moravian Kraj calls for production of more than 845,000 tons of grains, which represents 118.1 percent of last year's crop. The sugar beet production is set for 97,000 tons. Increased production of milk should exceed the Sixth Five-Year Plan at least 30 million liters. [Excerpts] [Prague ZEMEDELSKE NOVINY in Czech 30 Jan 80 p 3]

CSO: 2400

NEW INDUSTRIAL BREATH-GUARD FACE MASK DESCRIBED

East Berlin ATEMSCHUTZINFORMATIONEN in German Vol 18, 1979 (irregular)  
pp 1-5

[Article by Claus Krueger, engineer, industrial designer, VEB Medical and Laboratory Technology Combine, Franz-Flemming-Strasse 45, 7035 Leipzig: "New Breath-Guard Face Mask"]

[Text] Summary

The new breath-guard face mask developed by VEB Kombinat Medizin- und Labortechnik Leipzig is described. An ideal fit, variable possibilities of connection, a large field of vision, numerous possibilities of acoustic communications and an attractive design are some of the advantages which the new face mask offers its user.

Occupational safety is imposing evermore stringent requirements on safety and on the quality of protection. This is especially true for the new development of breath-guard face masks. These requirements must be implemented without restricting the natural movements and perceptions of the person being protected, and without the bother of high temperature and humidity. Furthermore, workers in hazardous environments are less and less ready to accept loss of their personal status because of the aesthetic inadequacies of a breath-protection means.

It is by no means a matter of course that all these relevant requirements can be taken into account on a world scale. During the recent development, it has appeared that the resulting extensive problems cannot be solved without difficulty even by a collective of specialists. The result of the demanding objectives will be indicated in the following explanation of the essential use-values of the new breath-guard face mask (Figure 1) from the main enterprise of the VEB Kombinat Medizin- und Labortechnik Leipzig.



Figure 1: Breath-Guard Face Mask 13114 through 13335



Figure 2: Combination of Matching Segments to a Matching Profile

- Key:
- 1. Horizontal section
  - 2. Direction of elongation
  - 3. Maximum elongation



## Fit

A tight seat of the mask on the face of its wearer dominates all other requirements. Only the absolute exclusion of the ambient air makes it a useful breath guard article, inasmuch as industrial production on a large scale, with its technically effective materials, excludes all corrective individual adaptations.

Extensive facial measurements on adults of both sexes and a specially developed method of statistical evaluation for human engineering have led to the present three mask sizes, which have an ideal tightness contour. (The method mentioned is presented in detail in the journal "form + zweck" (Form and Purpose) 4/78).

In order to explain the quality of fit with respect to the user, the following simplified description for determining the shape should be sufficient.

From a series of measurements on the faces of a large number of possible users, statistical evaluation resulted in seven typical heads. Of these, the smallest type from the group of the three largest head types simultaneously represented the largest type of the group of the three medium head types. Only in this way, do the tightness contours of all three mask sizes guarantee sufficient overlap. As a result, about 30 percent of all users will always fit equally well into two mask sizes.

The seven types of heads established in this manner were formed according to scale in semi-hard PUR-foam. They were resolved in stencils, without gaps, in 10 mm intervals, horizontally and vertically. The graphic projections obtained by means of these stencils yielded, for each horizontal intersection plane, of three head types belonging to a particular mask size, a two-dimensional fixed matching segment, which could be joined with the matching segments of the remaining horizontal intersection planes of this mask size, so as to obtain a matching profile. The sealing lips of all three mask sizes always run in the center of their matching profile and consequently guarantee an extraordinarily wide matching range, which is enlarged still further by using a highly elastic mask material with 20 percent elongation. A specific curvature of the sealing lips and their cross section, which constricts towards the face, guarantee a comfortable and soft seat of the mask.

The tightness contours of the inner masks were determined and designed according to the same principle (Figure 2).

To decide about the required mask sizes, the purchaser can use two facial dimensions as a reference point: The width of the face is the distance between the jaw bones, and the length of the face is the distance from

the lower edge of the chin to the top of the eyebrows (See Table). So that masks of different size cannot be interchanged at the point of use, the size designations 1, 2, or 3 are visible as raised digits on the mask body.

Mask Size	Width of Face	Length of Face
1 (large)	Larger than 130 mm	Larger than 150 mm
2 (medium)	Larger than 120 mm	Larger than 140 mm
	Smaller than 130 mm	Smaller than 150 mm
3 (small)	Smaller than 120 mm	Smaller than 140 mm

#### Inhalation Guidance

(With the Exception of the Coupling With Regenerating Units)

The inner mask divides the volume sealed from the ambient air into an eye space and an inhalation space. The inhalation gas flows through the inhalation valve and the flushing channel into the eye space. It here passes over the full-view pane, which preserves its clarity. Through the two flush valves of the inner masks it reaches the breathing space and consequently the upper respiratory tract of the wearer of the mask. During exhalation, the air is pressed through the exhalation valve into the environment (Figure 3).

#### Connection Possibilities

Depending on the desired device connection, the masks are equipped by the manufacturer with one of three different connection units. This makes it possible for the user to connect filters, container units, hose units, or regeneration units. The purchaser can select between a connection unit with a round thread Rd 40 x 1/7" according to TGL 0-3182 or DIN 3182, with a round thread 40 x 4 RGW-Standard 8762-75 or with a central thread connection 5/16". When the connection standards agree, it is certainly possible to connect the mask even to outside products (Figures 4 through 9).

#### Field of View

The value of a modern breath-guard face mask is significantly co-determined by the size of the field of view, which remains preserved for the wearer of the mask. The size, position, and inclination of the full-view panes are the result of extensive studies and endeavors in the interest of nearly unrestricted visibility.

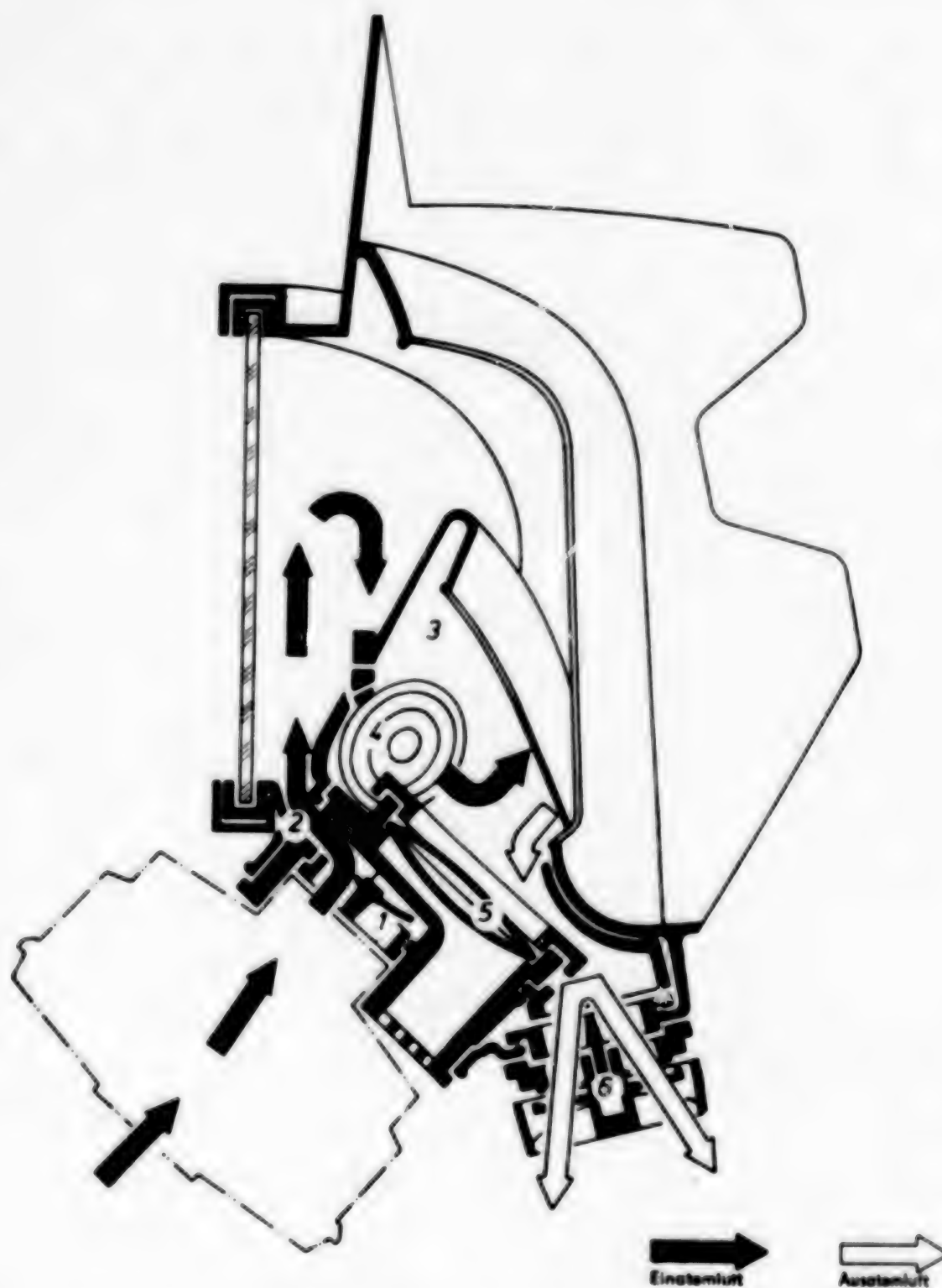


Figure 3: Respiration Guidance in the Breath-Guard Face Mask

Key: 1. Inhalation valve; 2. Flush channel; 3. Inner mask;  
 4. Flush valve; 5. Voice diaphragm (with protective  
 arrangement); 6. Exhalation valve; 7. Inhalation air;  
 8. Exhalation air.



Figure 4: Breath-Guard Face Mask with Screw Filter

Figure 5: Breath-Guard Face Mask with Connection Hose 18019 for Pressure Hose Units

Figure 6: Breath-Guard Face Mask with Regeneration Unit 17108

Figure 7: Breath-Guard Face Mask with Compressed Air Breathing Unit 16005

Figure 8: Breath-Guard Face Mask with Connection Hose 15063 for Pressure Hose Unit

Figure 9: Breath-Guard Face Mask with Visual Aid



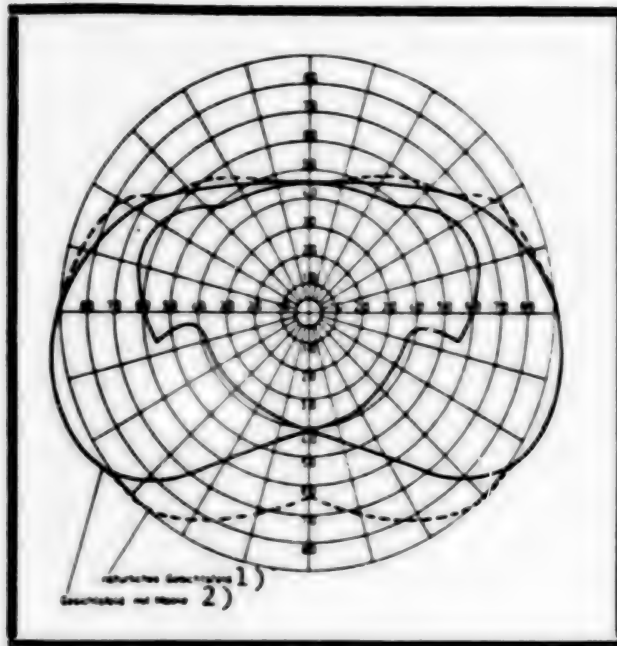


Figure 10: Representation of the Field of View of the Breath-Guard Face Masks 13114 through 13335

Key: 1. Natural field of view  
2. Field of view with the mask

The manufacturer developed a precision measurement method, which was used to preserve the so-called field of view of the mask wearers, for all three mask sizes, on a perimeter screen.

As Figure 10 shows, the natural binocular field of view remains almost completely intact for the wearers of the mask. The restriction of the field of view below the abscissa, with ordinate values -42 to -62 is practically without significance, since every orientation to this region, for example during a manual activity, is connected with a corresponding tilt of the head. Furthermore, the lower limit of the defined optical viewing region was at the ordinate at the value -40. The color perception limit lies at the same point.

Only few comparative products offer the user such a large field of view as the recently developed breath-guard face mask from the MLW Kombinat.

#### Full-View Pane

Depending on the type of application, the purchaser can select the optically non-distorting full-view pane, using either laminated glass or a high polymer as material. Laminated glass should be reserved for those applications where very high temperatures occur or where agents are active against which a high polymer is not resistant. For all remaining cases, the use of the high polymer is suitable.

## Acoustic Communication Possibilities

A voice diaphragm of polyester film is built into the mask and permits good communication through a megaphone, microphone, broadcasting unit, and telephone. Aggressive agents, however, may under some circumstances attack the voice diaphragm. In such a special case, this voice diaphragm is replaced by a disk obtainable from the manufacturer.

The position of the five tension points of the rubber headband is chosen so that the ears of the mask wearer are neither pressed or covered.

## Affixing of Visual Aids

For those who wear glasses, the mask body offers possibilities for accepting correcting glasses. The appropriate glass frames can be procured from the VEG Chemiehandel Halle.

## Assortment

The development of three mask sizes, each with three different connection threads and two types of material of the full-view pane offer the purchaser the possibility of selecting between 18 different mask types. A detailed prospectus can be requested from the manufacturer, and it contains an overview of the individual mask types, their different characteristics, and their respective order designation.

## Aesthetics

Human engineering and the concentration of form design on clear patterns, on surfaces that are smooth, easily cleaned, homogeneous in color, and with a silky sheen, and the most modern rubber spray techniques and plastic processing techniques available for this, have resulted in the aesthetic effect of the mask. The wearing of breath-guard face masks is frequently avoided because of the possible reduction of personal appearance. This factor is hereby essentially eliminated.

A large collective from the VEB Kombinat Medizin- und Labortechnik Leipzig has thus fulfilled all the relevant requirements which can be imposed on a progressive breath-guard article. The result of its work is a mass production item of highest protection quality and variability.

The breath-guard face masks carry the quality designation Q. At the Leipzig Fall Exhibition 1979, it was distinguished by the appellation "Good Design" and by the gold medal of the Leipzig Exhibition Office, because of its successful design, its excellent use properties, and its special advantages for the user.

GERMAN DEMOCRATIC REPUBLIC

ENERGY CONSERVATION SEEN MORE IMPORTANT THAN INVESTMENT INCREASE

East Berlin EINHEIT in German Vol 34 No 12, Dec 79 signed to press 7 Nov 79  
pp 1223-1226

[Commentary by Heinz Ziergiebel, economist, engineer, state secretary;  
chief, working group for efficient energy use, GDR Council of Ministers:  
"Conserve Energy Energetically"]

[Text] When in 1971 petroleum seemed abundantly available in the world, the development of nuclear energy caused euphoria among many, and deaths in mines reached the agenda of many capitalist countries, our eighth party congress passed a far-sighted energy policy: maximum development for our own energy resources, extension of our energy base through collaboration with the CEMA countries, in particular with the USSR, and turning rational energy use into a firm element of our economic policy. Thereby the course was set in time and over long range for our energy policy, whereby the complicated energy supply problems could be tackled--a true distinction for our party. The ninth party congress corroborated this basic concept in considering that continued stable energy supplies were an indispensable prerequisite for the growth of material production and hence, for the standard of living of the population, and that on the further advances in all our public domains would greatly depend the well-being, the growth and security, and the ongoing consolidation of our fatherland.

The further extension of our energy base, the high demands made on the extensive basic assets of our coal and energy industry and the rational use of energy all belong together. That is an essential feature of our energy policy. This unity between the continuity of our energy policy and the rational use of energy, an indispensable component of our way of running the economy, often defamed by our enemies as a "poor people's policy," has been the basis for the noteworthy results since 1971. It is a fact that we have achieved an annual income growth rate of more than 5 percent with an average primary energy growth of 2.5 percent. Or do you think it is not an outcome of economic significance that within that period energy rationalization measures yielded an economic benefit of approximately M 2.9 billion? Those savings are tantamount to a good 60 million tons of raw coal, more than one-fourth of the total volume mined at present.

The circa 500 energy industry enterprises in our economy have made an exemplary contribution to that result. There, the government allowances for energy use are strictly observed or not even fully used, their specific use in production is systematically lowered, and the products excel through favorable energy consumption-performance ratios. These are results that attest to the advantages of socialist economic management. In these enterprises, rational energy use is standard procedure in the management and planning of production and the organization of socialist competition. Innovators and rationalizers increasingly focus on energy saving. Through BMSR (industrial measuring, control and regulating technology), the work with technically and economically sound norms has reached a high level. And not last, the working people are given material and other incentives for keeping at or below the parameters of specific energy consumption. The energy enterprises that work in such a model fashion are consultation centers conveying their experiences to the working people in the industrial branch or in the territory.

The experiences which we have had with the rational use of energy will now also be used for tapping available reserves at significantly larger dimensions. Among our priority economic policy aims is to organize efficient energy use along new criteria. For in the interest of the further development of our economy, and on behalf of the population's living conditions, measures for an efficient energy policy are better than raising the investments in the development of our energy base, which in past years came to approximately one-third of all our industrial investments.

Tapping larger reserves for energy conservation also is imperative because world market petroleum prices have risen tenfold since 1971 and no end is in sight for those price increases. Nor must we leave out of account that worsening geological conditions make our brown coal mining more expensive, which means that considerable investments and means will be needed in the future too for extending our energy base and for importing energy sources.

Not last we take into account in the rational energy use that rationalizing is much cheaper than extending the energy base, which however will not be neglected in the future either. Investments in rationalization measures in many energy-intensive processes yield a flowback rate of from 1.5 to 2 years, whereas it takes 15 and more years to amortize the expenditures for setting up new power plants and open-pit mines. Our economic objectives therefore focus on meeting in years to come circa two-thirds of the energy, material and raw material requirements needed for production growth through energy conservation and material economy measures.

As it conforms with the socialist character of our society, the decisions on the rational use and thrifty handling of electrical energy, heat, fuels and propellants, and on eliminating energy waste, rely on involving all citizens in these economically important tasks. More than one-third of our energy, for example, is used in home heating. But here precisely it is possible in many cases to save a lot of energy by being mindful of



keeping the heat supply down and the heating units under control. That is why those tasks in this field are given primary emphasis. Unnecessary lighting must be avoided. Diesel and carburetor fuels must be used sparingly. Those also are important tasks on which the stability of our fuel and energy supply greatly depends. Many industrial collectives have already come up with new initiatives for energy conservation.

It is now more important than ever to implement thoroughly considered measures against energy waste and for energy conservation wherever energy is used. To take concrete conditions into account and consider all interconnections in their variety is as imperative as to pick up all suggestions and criticism from the working people and to direct their initiatives to the elimination of energy losses and to efficient energy use. A strict control of measures set down is indispensable. In the coming days and weeks, the emphasis in all activities will be placed on avoiding all energy waste because that also is an important condition for assuring energy supplies for the winter half-year.

Looking forward to the 1980's, however, it is a matter of permanently securing highest efficiency in energy use and of tapping reserves at the largest dimensions. What do we have to do?

More rapid use must still be made of the experiences of exemplary energy industry enterprises. They exist in every economic field, every bezirk, every kreis. It is a priority concern for the combines and enterprises, and for the bezirk and kreis energy commissions. Within the scope of the entire economy, larger reserves have to be tapped through accurate planning and accounting for energy consumption, oriented to optimum values. Process analyses are an important tool for it, especially for energy-intensive procedures. They make possible the optimization of production processes and disclose significant energy loss sources. With it, production reserves are tapped, shift capacity use of energy-intensive installations is increased, the quality of the products improves, and the working and living conditions are affected favorably. A process analysis in the Leuna Works of methylamine synthesis brought a material saving of M 1.6 million, M 4 million reduction in energy consumption, and a M 10 million increase in commodity production per year. Labor productivity can be improved by 60 percent.

Part of the tapping of energy reserves also is that the people working on boiler plants, industrial furnaces and other energy-intensive installations have good technical skills and are made familiar with the latest data at enterprise academies and through the enterprise sections in the Chamber of Technology. It is equally important that they get material and other incentives for getting along on or below the level of the planned energy consumption by the way socialist competition is conducted and by keeping budget books on the basis of technologically sound standards. If a worker on a boiler, on a melting kettle for glass, or on a tunnel kiln understands economic interconnections, has high technical knowledge, and if installations

are equipped with adequate BMSR technology and the working people's achievements are recognized, and that recognition also shows up in their pay envelopes, they will fully invest their abilities in operating their installations with the lowest input of energy.

We must not ignore, however, that among the circa 1,800 enterprises in the economy which consume 95 percent of the energy, 10 percent exceeds its energy contingent and thereby violates state discipline. Government sanctions are going to be used in the future against those enterprises. For energy used in excess they will have to pay ten times more. Thereby a more compelling influence will be brought to bear than has been in the past on strict discipline in energy consumption.

The higher criteria for rational energy use require reaching the scientific-technical optimum standards in energy use in the development, projecting and design of new procedures and installations. For that reason, as a basis for the next five-year plan, a unified conception has been elaborated for assuring coordinated R&D, from basic research to the broadly effective introduction of the latest data in practice. It allows us to determine the sequence of the R&D tasks in rational energy use. They are given a priority material-technical backing and are implemented as state orders via the state plan for socialist rationalization and the investment plans.

The research on energy use is concentrated in particular on enhancing the efficiency of energy conversion, the reduction of specific heat consumption for heating homes, public buildings and industrial buildings, a better use of waste energy including the use of heat pumps, the improvement of energy parameters in energy-intensive procedures and installations, and the rational organization of transportation processes and lighting. Each combine and enterprise that develops new products and procedures must base its R&D, projection and design requirements on the highest criteria for specific energy consumption. This requires thorough reconsiderations in all R&D, projection and design bureaus.

It is more and more the international competitiveness of our products and the quality grades awarded them that will determine the top performances with respect to specific energy, material and raw material consumption. We must therefore review our energy consumption norms and direct the material and other incentives of our researchers, project chiefs and designers more and more toward that task. The high criteria set down in the resolution on rational energy use have to be carried over without delay into the R&D tasks and included in existing TGL's (GDR norms) and energy consumption norms. That would set important preconditions for constraining the growth of energy requirements and expanding our economic leeway.

Rational and thrifty use of energy is also of important concern to commerce and the supply services, culture, public education, public health and the households. They consume approximately 45 percent of the electrical energy,

the gas, the soft coal briquettes and other energy sources. Our party's successful social policy led to the rapid development of dwelling units and public housing construction and to widely furnishing our households with washing machines, television sets and refrigerators, which brought about above average growth rates in energy consumption. This makes it all the more important that we prudently and responsibly tap all possibilities for the thriftiest use of energy, as concrete conditions allow us to do, mainly in home heating and lights in all areas and in the use of electric household gadgets. This literally concerns each citizen--for his own advantage and for the good of the entire economy.

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GERMAN DEMOCRATIC REPUBLIC

COMBINE SYSTEM'S DEVELOPMENT, FUTURE TASKS ANALYZED

East Berlin EINHEIT in German Vol 34 No 12, Dec 79 signed to press 7 Nov 79  
pp 1266-1274

[Article by Prof Dr Gerd Friedrich, deputy director, Central Institute for Socialist Economic Management, SED Central Committee; member, GDR Academy of Sciences; chairman, Council for Economic Management Problems; and Prof Dr Claus Kroemke, deputy department chief, SED CC: "Combines--Basis for Higher Management Quality." Translations of articles cited in the following footnotes are available in the indicated JPRS issues of EAST EUROPE REPORT: POLITICAL, SOCIOLOGICAL AND MILITARY AFFAIRS: Footnote 3, by Guenter Mittag under the heading, "Mittag on Combines as Key to Socio-political-Economic Achievement," in 72294, 22 Nov 78, No 1612, pp 17-42; footnote 4, by Erich Honecker under the heading, "Honecker Reviews 30-Year Growth of 'Developed Socialist Society,'" in 72054, 16 Oct 78, No 1597, pp 21-30. For further translations of related information see the following JPRS issues of EAST EUROPE REPORT: ECONOMIC AND INDUSTRIAL AFFAIRS: On legal questions, 74160, 11 Sep 79, No 1932, pp 33-43; 73725, 20 Jun 79, No 1908, pp 22-32; and 72644, 17 Jan 79, No 1841, pp 9-28; on problems of planning, 74418, 22 Oct 79, No 1945, pp 30-33; and 74320, 5 Oct 79, No 1940, pp 56-60]

[Text] Proceeding from the objective necessity and the results achieved thus far in the process of the formation and consolidation of the combines, the responsibility--now clearly established by law--and the place of the combine within the economy and its relations with the combine enterprises are explained. The combines, for the development of which the general directors bear a great personal responsibility, are described as the stable basic foundation of industrial management structure which must on the whole give rise to a higher quality of management and planning. The new demands arising therefrom also are explained.



Paying tribute to the 30-year development of our republic, Comrade Erich Honecker has reiterated our party's determination to carry on the proven program for growth, prosperity and stability. A declaration of such importance is based on the certitude that the socialist social order has inexhaustible sources of strength which it can better exploit the farther it advances. The most important thing is "to use all advantages of socialism in still more effectively combining science with production and advancing intensification and rationalization with great purpose and breadth."<sup>1</sup> The task posed thereby, of increasing labor productivity beyond the normal measure, rationally using energy, raw materials and other material and, altogether tapping all reserves far more thoroughly, is in a comprehensive sense aimed at highest economic efficiency.

Such a requirement, focusing on high criteria, is based on results already achieved and mainly on that there are great efficiency sources in the penetrating process of forming and consolidating the combines. Making use of such sources, combines like Carl Zeiss Jena and Robotron, but also Elektroanlagenbau, Polygraph and others, have already come up with great achievements in 1979, and they envision further significant performance improvements for 1980. The best evidence for that comes from the new commitments made by many collectives. They are born in the same militant and optimistic spirit that marked the upswing of mass initiative in the socialist competition in honor of our republic's 30th anniversary, an impulse they are carrying farther. Characteristic of many of these commitments is their exceeding the 1979 plan by one, two or several daily production volumes; the high output production rate and labor productivity for the 1980 plan, in excess of the 1979 plan; and the introduction of technological top performances and top commodities, at briefer intervals and greater breadth, into production.

This unfolding of mass initiative, the activity of the collectives in the combines and enterprises, reflects the ever closer relationship of trust between our party, the workers class, the intelligentsia and all other working people. Indeed, it is based on the successful political and economic balance-sheet on three decades, particularly on the real results achieved in the course of the unity between our economic and social policy which the eighth and ninth party congresses decreed. It is also based on the socialist ways and means and the labor organization in the working people's collectives.

#### Toward Highly Effective Socialist Large-scale Production

The modern management of socialist industry is one of its crucial efficiency factors. That proceeds on the basis of the combines that come directly under the industrial ministries. "The state-owned combine as the basic economic unit of material production," as the new decree on the state-owned combines, combine enterprises and state-owned enterprises puts it, "is a modern management and organizational form in industry and the building trade and in other areas of the economy, based on uniform state and public ownership."<sup>2</sup>

Starting in 1980 there will be 129 combines in the industry and building trade of the GDR. In them, more than 90 percent of the working people in the centrally managed industry and the centrally managed building trade will be employed--as compared with 36 percent in 1976, and circa 90 percent of the industrial R&D potential will there be concentrated and close to 90 percent of all of industrial commodity production will be handled there. With the formation of the combines the management and planning of the GDR economy in industry and the building trade will be placed on a new foundation. From now on the large economic units--normally with a work force of 20,000 to 40,000 and an annual output of several billion marks--will make up a stable basic management structure with all their enterprises, research facilities and sales organs.

The formation of the combines raises, and settles, a question of principle regarding the strategic approach to perfecting economic management and planning. There is an objective foundation to organizing the management structure in the socialist economy, including industry and the building trade. The need for any management activity, as one knows, arises from the social character of the labor process, from cooperation, from the concentration of labor by many involved in one production process and, above all, from the division of labor. And thus the concrete structure of the social character of labor greatly affects management activity. Under the conditions of socialist property ownership it is possible as it is necessary to plan the development of the social character of the labor process, that is, the socialization process, systematically, and this most decisively under the aspect of creating optimum conditions for a highly effective management of social production.

It is a well known fact that production split up into many specialized partial processes within the scope of the economy at large is difficult to cope with. That is found to be true especially in places where technologies and production assortments develop rapidly, qualitative innovations are required, and a main problem of all the work lies in a rapid economic application of scientific-technical data. Under such conditions concentration becomes necessary. To that conforms the organization of the entire management structure on the basis, precisely, of the combines. That constitutes the material and managerial prerequisites for keeping complex and interlinking economic processes rigid and flexible at one and the same time, directly on the level of the economic units, and for purposefully using all possibilities for placing specialization and cooperation under uniform management.

Setting up these combines thus is not a matter of merely structural changes. It rather is a production concentration on an economic basis, a genuine economic merger of organically interconnected enterprises and facilities. So the combine is a socioeconomic organism and not merely a production-technical or organizational phenomenon. The basic idea behind the setting up of combines is to close the reproduction cycle on the combine level. For that reason the combine has its own funds and operates strictly in accordance with economic cost accounting principles.

The combine makes available to the economy an end product in the form of processed raw materials, economically important ancillary supplies, production equipment and consumer goods. For that it has the requisite R&D capacities, project planning facilities, production and assembly enterprises, specialized ancillary enterprises, and enterprises and production plants for producing the means of rationalization. Thus it possesses all the material prerequisites for intensively expanded reproduction in its enterprises aiming at a highly efficient manufacture of end products in the combine. The combines are also responsible, if to different degrees due to the differences in specific conditions, for the sale of their products domestically and on foreign markets, and some of them even have their own sales organizations.

The formation of such combines is the outcome of applying the lessons of the classic authors of Marxism-Leninism, especially Lenin's, about the process of the socialization of labor in socialist construction. It is based on a thorough analysis of the developmental stage reached by economic management and planning in the GDR moving toward the developed socialist society, and of the development of the productive forces. In this, the organic combination of the scientific-technical revolution with the advantages of socialism has a special role to play. Drawing conclusions from it means, for example, creating the kind of efficient scientific-technical capacities and combining them with production in such a way that it becomes possible within extremely brief periods to have scientific-technical data enter large series production of top level products, through which the highest economic effectiveness is rapidly attained. And so--proceeding from objective developmental requirements--our own experiences as well as the inestimable experiences of the Soviet Union in the development of economic management and planning, experiences gained from the application of the lessons taught us by the classic authors of Marxism-Leninism and included in the store of knowledge in the field of socialist economic management and planning, form the sure theoretical foundations for further perfecting our economy's management and planning as it is taking place through combine development. With the creation of the combines and organizing their successful work, our party is proving once again its strength in forming our society for the good of the people. This is irrefutable testimony that the workers class, once it has seized political power, in close alliance with the socialist intelligentsia, not only masters large-scale production as created by capitalism but--based on decades of experiences--lends a new quality to it, produces, that is, highly efficient socialist large-scale production that is becoming ever more perfect. All this enhances the authority of and respect for socialism, not only domestically but also at the international scope. Above and beyond their direct economic contribution to strengthening our socialist fatherland, efficient combines with great reputations on the world markets such as Carl Zeiss Jena, the Ernst Thaelmann heavy machine building combine, the Walter Ulbricht Leuna Works, Pentacon Dresden and others vitally help solidify the GDR's reputation as the tenth strongest industrial nation in the world.

## The Position and Responsibility of the Combine

The combine, working on binding central state plan tasks, bears a great economic responsibility. Assuming it mainly leads to the result that there is a rapid and significant improvement in efficiency. This can of course not be done by simply combining the enterprises as they are into combines. The most important thing for tapping efficiency reserves is the uniform management of the enterprises and facilities belonging to the combine, proceeding from the overall economic target given the combine as a whole.

This uniform management has an objective basis: the fairly closed reproduction process in the combine. It is of extraordinary importance that all crucial phases of the reproduction cycle and their material premises exist within the combine: R&D, project management and technological production preparation, capacities for the production of means of rationalization, construction departments, quality-controlling ancillary supplies, capacities for the production of the combine's end products and sales organs. However, in talking about a closed reproduction process in the combine, we mainly mean that these various phases do not just exist side by side but are economically intertwined with each other. This finds its most concentrated expression in that the funds allocated to the combine as a whole lead to high increasing production growth year after year. Thus a combine must constantly provide the foundations for its own expanded reproduction and, above and beyond that, make its contribution to overall economic accumulation. That implies in particular preparing and implementing investments, aiming at highest efficiency--in other words, as rationalization investments.

Among the most important advantages of the combines is that they constitute so great an economic capacity that each phase in the reproduction process can be made highly efficient. In the combine, thus, the advantages of division of labor and specialization in particular partial processes are being used. Decisive in all of this, however, is that we succeed in combining the partial processes and components of the combine in a uniform economic organism. From the juxtaposition of labor in various enterprises and facilities--to put it in terms that are perhaps a bit too subtle--we must get to a well coordinated correlation in terms of substance and in terms of time, to bring about genuine production concentration including science and technology in line with the objective possibilities and contemporary requirements for the processes of the socialization of labor.

## The Position and Responsibility of the Combine Enterprises

The combine is made up mainly of enterprises. These enterprises are legally and economically units working under their own responsibility. The important thing is that they get their state plan which they have to implement and account for just as the combine as a whole. The role of the combine enterprises so defined takes account of the objective fact that the material



production in industry and the building trade takes place on the basis of enterprises as economic units with their own traditions, names and close intertwining within the territory.

At the same time, however, the enterprises are elements of the combine, which makes them combine enterprises. With respect to them, the combine acts on state orders and exercises state functions. The enterprises get their state tasks from the combine and have to account for them to the combine. This makes possible the precision, from the outset, of the economic plan tasks for each and every enterprise in the combine and a stronger focus on the end result of the combine, so that the overall state responsibility of a combine as a whole and in all its parts can comprehensively be assumed. The economic responsibility of the enterprise now is expressed more strongly in that it has to fulfill its tasks within the combine framework. Their implementation proceeds in accordance with stipulations laid down by the general director of the combine for the tasks and work of the combine enterprises. This follows from the need for closer cooperation among the combine enterprises for implementing the overall task of the combine.

#### The Economic Responsibility of the General Directors of Combines

From the place of the combines in the reproduction process of the economy also is derived the great responsibility borne by the managers heading these economic units for the fulfillment of the economic policy goals. The general director is personally accountable to the GDR government and the party of the workers class that the tasks of the combines are fulfilled as set down in the Central Committee decisions, the state plans and in other legal regulations. "Whatever decisions the general director of a combine may make--they affect the economic proportions as a whole. For that reason a general director of a combine can meet his responsibility as a communist only if he always proceeds from these overall social interests and, without any compromise, lets himself be guided by them in every issue. That mainly means that the performance of a compromise must reflect a high contribution to the economic end product."<sup>3</sup>

Experiences gained in the process of the formation and consolidation of the combines emphatically confirm the great personal influence exercised by the managers heading these economic units through their decisions, their aggressive stance and their management style in the struggle for high economic results for the combine as a whole. The personal dedication by the general director to high objectives in the solution for economic tasks, his objective analysis of existing problems, sound criticism and clear conclusions, accurate accounting for what has been achieved and recognition of high performance are prerequisite to successful work. Fulfilling these demands helps shape the attitude of the managers on all combine levels, down to the collectives, toward the decisions and tasks that is required to cope with the questions of the present and fully get set for what is to be expected of the future. That is an attitude which insures that all necessary decisions are made out of social responsibility and gaged against the requirements for a high improvement in economic



efficiency; the cadres take a responsible position on scientific-technical progress, accelerate it with all their strength, and fully commit themselves to the economic application of its results in production; full use is made of the internal efficiency reserves for production proper as to needs and the socialist attitude toward and the mass initiative in the collectives are furthered; and pride in success always is combined with being intolerant to still existing deficiencies, self-satisfaction is fought against, and everyone assigns still higher targets to himself.

The general director of a combine thus bears a high personal responsibility for highly efficient work in a large collective, for an advantageous investment of enormous material and financial funds. That is the reason why it is so important for him to understand how to concentrate in his management activity on those tasks that are crucial for performance and efficiency improvements and for all-round plan fulfillment in the combine. A special rank within the realm of these tasks is of course warranted for the matters of science and technology. An essential condition lies in the manager's judgment, his ability to derive demanding tasks for the production preparation areas of science and technology from economic requirements, from noticeable developmental tendencies of science and technology, and from uncompromising comparisons with international technical and economic standards, and to enforce an efficiency-promoting, top-performance oriented atmosphere and organization of labor in those areas, so that the combine will stand up as a stable component of the economy. The working style of many general directors is distinguished by their preparing and implementing decisions in this field in such a way that the necessary scientific-technical lead time is assured and the results of science and technology fast become operationally effective. Here they rely on highly skilled, long-range conceptual work in the combine which makes possible, through the five-year plan and the annual plans on the basis of state requirements, developing the combine's entire potential and using it in such a way that it meets the demands for economic efficiency.

For plan implementation and, above all, for production-relevant and uniform management in the entire combine, the political education of the managers on all levels are important matters in their assuming their responsibility. To fulfill the tasks assigned is an iron law for every manager and all collectives. High discipline is indispensable in as highly differentiated and, through division of labor, intertwined an organism as the combine and, beyond that, the economy on the whole. A management organization that clearly delineates managerial tasks and responsibilities and sets down the rules on how to cooperate in the shouldering of joint tasks permits the general director to assure plan fulfillment presciently, make the needed operational decisions fast and assure coordination in the entire combine as needed for plan fulfillment.

Uniform combine operations aimed at high economic end results calls for close cooperation between combine management and the combine enterprises. That calls for suitable forms and methods of cooperation between the general director and the enterprise directors of the combine enterprises who, as a

rule, belong to combine management. Clarifying basic problems in combine development and combine management and elaborating a consistent line for the solution of tasks, with the combine's technical directors as well as with the enterprise directors of the combine enterprises, insures a purposeful and collective approach of all areas and enterprises in that economic unit. The general director must always see to it that confident cooperation, oriented to high goals, develops all throughout the management collective.

In many combines, regular conferences have been found useful between the party organizer of the SED Central Committee, the chairman of the plant labor union executive board and the general director as much as those functionaries' attendance of combine management conferences. The same is true of regular appearances by the general director before the management bodies of the social organizations. Thus the combine's decisive management documents become the basis for the targets in socialist competition as assigned by the general director. In close cooperation with the social organizations also the general director's status reports on plan implementation are being prepared for presentation to the combine's working people. This sympathetic collaboration and joint search for one and the same goal are greatly important for the relationship of confidence in the combine's work collectives and deeply affect the trust the workers, members of the intelligentsia and all other working people in the combine have in our party policy. In all the work of the combine and its management practice therefore the further development of these relationships of confidence deserves steady attention.

#### Higher Demands on the Working Procedure of Central State Management

The development of the combines into large economic units which have considerable rights and material possibilities for solving, on the basis of the plan, concrete production problems under their own high responsibility of necessity leads to qualitative changes in the whole system of economic management and planning. The combines' higher economic responsibility, growing out of their material structure and their place within the economic reproduction process, forms the basis for improving the skills of economic central state management and planning. "The central economic management organs can and must more and more strongly concentrate on presciently clarifying the basic problems of our proportionate and dynamic economic development and on creating optimum conditions for efficient work by the large units that have to direct and conduct the reproduction process in situ."<sup>4</sup>

As Comrade Erich Honecker emphasized at the 10th Central Committee session, conclusions for the ministers' management activity were drawn from the combine development, and appropriate changes were laid down for the working procedures of the central state economic management organs. "This further strengthens democratic centralism in economic management. The proposals were worked out by the ministers themselves. They aim at improving the

efficacy of central state planning in concentrating it still more strongly on certain economic processes. They rely on the combines' increased overall economic responsibility because their own responsibility is raised, which saves a lot of paper."<sup>6</sup>

The higher quality of combine management and of the work of the central state organs shows two intimately interconnected and essential processes that are characteristic of management under the conditions of the continued shaping of the developed socialist society: the strengthening of democratic centralism and the focusing of the entire economic organism on making the fullest use of all efficiency reserves.

We find one of the most complicated tasks of the central state organs to be to insure proportionality under the conditions of increasing dynamics in our economic development--caused by scientific-technical progress and the relatively fast changing demand structures on domestic and foreign markets--and with increasing economic and foreign economic interlinking. This places the highest demands on preparing planning decisions, on analytical work and projections, and on the methods for balancing and planning. It becomes necessary to strengthen long-term planning and to set demanding and realistic goals with the five-year plans and the annual plans, commensurate with the necessary and possible economic efficiency improvements. Solving the central state organs' tasks also implies a high degree of operational work in the process of plan elaboration and implementation, so that questions can be resolved that go beyond the competencies or possibilities of the combines.

Clear goals for longer periods of time and the integration of the combine within the long-term economic concept have been shown by experience to be an essential prerequisite for effective and long-term stable combine development. Indispensable for it is skilled long-term conceptual and plan-preparation work on the level of the industrial ministries as well as of the combines. Essential in this work is substantive preparation for those decisions that are to be coordinated and set down through the plan. That pertains in particular to the use of growth factors (science and technology, investments) and to efficiency and performance development. Not until these decisions are made--while there is accurate knowledge about the resources in the combines--can there be a possibility for properly assessing the dynamics of important plan parameters and for establishing, by means of these plan parameters, an economically efficient combine development held to high yet realistic targets. There are mainly two chief directions suggesting themselves for perfecting the industrial ministries' management and planning activity:

First, direct cooperation between the industrial ministers and the general directors of the combines for improving the skill of long-term conceptual work, in five-year planning for the industrial field, and in starting economic planning. The main thing is to elaborate sound economic decisions on the form to be given, long range, to the production structure in the

industrial areas and on how to preserve in the future the proportionality between earlier and later production stages. That makes it possible for the combines to proceed in their long-term planning work from an assortment and production development that is integrated most stably within the economic concept. That requires of the ministry more analytic and prognostic work, comprehensive cost accounting, and a more highly skilled standardization in planning.

Second, translating state tasks and state planning quotas for the industrial area into balanced state tasks and state planning quotas for the combines' five-year and annual plans. That requires that the forces in the industrial ministry concentrate mainly on the following priorities: Elaboration and implementation of a uniform scientific-technical policy for the industrial area (including the investments). That calls for close cooperation with other central state organs and the combines. It is a crucial prerequisite for the necessary dynamic and stable performance and efficiency improvement and the greater economic and social efficacy of science and technology; differentiating in the state tasks and state planning quotas for the combines. That is done by objective criteria and yardsticks of optimum economic efficiency and with an eye to the complexity of the material processes; a constant analysis of the efficacy and perfection of economic incentives and performance evaluation in the industrial area; elaborating economic decision proposals, including input-output data, coordinated with the main partners, to solve complex tasks that have a high economic interlinkage; and closer cooperation with the local state organs to improve the coordination between combine and territorial development.

In preparing and implementing their plans, the industrial ministers concentrate on problems that exceed the combines' areas of responsibility and are extremely important for production continuity and plan implementation stability. Central state management and planning by an industrial ministry thus primarily means working out the main developmental directions of science and technology and of the production structures, assuring long-term production intensification, principally by comprehensive socialist rationalization, and creating fundamental conditions for permanently stabilized co-operations relations among the combines under the ministry and above and beyond any particular industrial area, coordinated at the range of the entire economy.

Of great importance for the quality of the management and planning activity in the industrial area is the style of cooperation between the minister and the general directors of the combines, and between the ministry and the combines' management apparatus. There lies an important reserve for improving economic efficiency. Skillful ministerial decision preparation when dealing with the general directors makes appropriate demands on the skills of the leading functionaries and associates in the ministry and on the working methods used in the ministry.



Strengthening democratic centralism implies consistently abiding by the instructions coming down from the industrial minister and the general director and the industrial minister's working with the general directors personally. It is important now to support the general directors in the combines in assuming their personal responsibility for managing these large economic units. There are a number of implications here that warrant attention. The point is to be made, for example, that the executive functionaries and associates in the ministry are not authorized to give orders to the general directors. They develop working relations with the combines within the range of decisions made by the minister. To the extent that it is necessary for the fulfillment of overall state economic tasks that central state organs handling tasks that cut through more than one field must affect the economic and management activity of combines, in principle this will be done through the competent industrial minister.

The measures adopted for further improving management and planning, as they became necessary through the development of the combines, aim at attaining an improved management activity in the combines as such and, simultaneously, in the ministries and the other central state organs. Their purpose is to strengthen democratic centralism, improve the level of prognostic analysis and of decision-making for ripe economic problems, more effectively assist the combines in the implementation of the tasks state economic plans assign to them, and exercise stricter controls over results achieved. In this sense, appropriate measures also are taken for more clearly delineating responsibilities and making central state planning easier to comprehend, while the system of parameters and reporting are made more strict.

Thus development confirms that the formation and consolidation of the combines is the most essential step toward perfecting economic management and planning in implementation of the ninth party congress decisions. This step was followed by measures designed to improve the working methods of the ministries and other central state organs. Altogether they constitute the implementation of a uniform concept our party has for perfecting economic management and planning on behalf of implementing the ninth party congress decisions, which serve the good of the people.

#### FOOTNOTES

1. Erich Honecker, "Great Achievement in 30 Years--Great Goals for the Future," NEUES DEUTSCHLAND, 7 October 1979, p 4.
2. "Verordnung ueber die volkseigenen Kombinate, Kombinatbetriebe und volkseigenen Betriebe vom 8. November 1979," GBL, Part I, No 38, p 355.
3. Guenter Mittag, "Purposeful Implementation of the Main Task," EINHEIT, No 10, 1978, p 1001.
4. Erich Honecker, "Shaping of the Developed Socialist Society--Task of Historic Magnitude," EINHEIT, No 7/8, 1978, p 680.



5. "Dem 30. Jahrestag der DDR entgegen. Aus dem Schlusswort des Genossen Erich Honecker auf der 10. Tagung des ZK der SED" (Approaching the 30th GDR Anniversary--From the Concluding Speech by Comrade Erich Honecker at the 10th SED Central Committee Session), Dietz publishing house, Berlin, 1979, p 195.

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GERMAN DEMOCRATIC REPUBLIC

PRIME COST REDUCTIONS URGED TO RAISE NATIONAL INCOME

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[Article by Prof Dr Fred Matho, deputy director, department of political economy of socialism, Karl Marx Party College, SED Central Committee:  
"Growing National Income Through Reduction of Prime Costs." A translation of Erich Honecker's 30th GDR anniversary speech, cited in footnote 1 below, is available in FBIS Eastern Europe DAILY REPORT, Vol II, No 196, 9 Oct 79, pp E 5-E 14 (broadcast version). For additional related information see the following items translated in JPRS issues of this series as indicated: by Guenter Mittag under the heading, "SED Economics Chief Scores Production Cost Excesses," and by Jochen Hertwig, "'Rationalization' to Raise Productivity With Reduced Labor Force," in 74834, 28 Dec 79, No 1967, pp 45-57 and 58-67 respectively; and by Prof Helmut Koziolk under the heading, "Significance of High National Net Income Explained," in 74531, 6 Nov 79, No 1950, pp 57-66]

[Text] Cost reduction is an important element in the working people's struggle for raising our country's economic efficiency. Here it is being shown what effect the reduction of prime costs has on our national income. Proceeding from analyses of what causes the incurring of excess costs, it is being demonstrated by examples how cost reduction priorities are to be recognized so as to guide, through purposeful political-ideological work, the working people's initiative toward cost-conscious and thrifty economic activities.

In his 30th GDR anniversary speech, Comrade Erich Honecker described how we, with justified self-confidence and filled with optimism, attack the task to assure economic efficiency improvements that will make it possible to safeguard and gradually further extend the material and cultural standard of

living we have achieved. "The measure of progress in all areas of life will mainly depend on how well we manage to master our economic tasks with success and high efficiency," he said.<sup>1</sup> Strengthening our country's economic efficiency is the central issue in the further shaping of the developed socialist society. It is the only way for satisfying the demands in all social areas, which will continue to grow in the 1980's. This is all the more true in view of the altered internal reproduction conditions and--as the 10th SED Central Committee session emphasized--of the far-reaching changes for our economic growth due to the profound changes on the international markets. New magnitudes in the development of economic efficiency call for all-round effective economic management, for mobilizing all our people's capacities. And here, a higher grade of struggle for cost reduction is of outstanding importance.

#### Important Source for Raising the National Income

Cost reduction is a permanent task of socialist economic management of increasing importance. This, after all, most significantly affects the whole scope of our economic growth. Seeking high production results must also always mean struggling for cost reduction. In fact, a mark of successful work collectives is that they combine high production performance with big advances in cost reduction. There are still enterprises, however, that are doing well with the production plan but not with their cost plans. That constitutes economic losses. It must in no way be shrugged off in cavalier fashion as a minor delict. Plan fulfillment is wanted in every way. We must produce commodities proper as to volume, assortment and quality by inputs that do not exceed what is socially necessary. It is this input aspect in economic activity in the enterprises that the costs reflect in a relatively complex manner.

In economic terms, prime costs are the monetary expression for the running expenditures in live and embodied labor for the preparation, implementation and realization of production. That is to say, they express the wear and tear in the reproduction process of structures, machinery and equipment as amortizations and the raw materials, fuel and energy consumed in the production process as material costs. They reflect the live labor used up in production, as it is expressed in the labor wages for necessary labor, as wages and include other expenditures counted among the costs--for instance interests, taxes, social expenditures, sanctions. If one wishes to affect these costs, one must post these types of costs in accordance with the role they play in the industrial reproduction process as technological costs, management costs, costs for procurement and sales, and through further subdividing them in terms of where precisely within an enterprise they are generated, as cost positions. Reducing costs then means saving working time in the production of the commodities as well as making full use of the legal working hours. It means reducing the consumption of basic and ancillary material and energy and making full capacity use of the machinery and installations in terms of time and their production efficiency (through modern technologies). This material substance in prime cost reduction that lies behind the saving of money is what we are concerned with.

Systematic cost reduction is essential for raising the national income. The national income is the total social product produced in a given period through productive labor minus production consumption (consumption of material and wear and tear of machinery and installations). That is the net product. In the GDR in 1978, the total social product was M 424.8 billion, the production consumption, M 263.7 billion and the national income, thus, M 161.1 billion. From a 60.6-percent share of the production consumption in the total social product in 1970, it rose to 62.1 percent in 1978 (in 1950, it had been 56.7 percent). The eighth Central Committee session already placed great emphasis on our having to reverse that trend. Many factors are responsible for our increasing production consumption, but it very much expresses the fact that in many areas our production is still too expensive. "Too much material and energy, and too many production services and labor tools are still being consumed per commodity unit. Any positive change in this area increases our national income."<sup>2</sup>

One percent of saving in energy, raw materials and other material in the economy amounts to circa M 2.2 billion. That corresponds to approximately one-fourth of the annual growth of our national income, which constitutes the growth of means for public consumption as well as for increasing accumulation for expanding and perfecting our production and its material-technical base.

Cost reduction in live labor, the wages per commodity unit, also brings more national income. It, after all, reflects that per labor unit more use values (means of production or consumer goods) can be produced. In taking total costs, their reduction in the centrally managed industry by one pfennig per 100 marks in commodity production brings us a sum of circa M 20 million. That would, for instance, be enough for investing in 200 machine tools or for 500 trucks of the W-50 model. It would be enough for building dwelling units for almost 2,000 citizens or for the running annual expenditures for 20,000 children in kindergartens.

The correct planning of costs and abiding by the planned prime cost reductions thus are essential for the systematic development of the national income. The importance of cost reduction for expanding our margin for strengthening the material-technical base of our economy and for implementing our social policy is growing constantly. By keeping below the level of planned costs, we make our national income grow faster than planned. But if we exceed the level, we diminish the planned growth and thereby curtail the possibilities for increasing our exports and for our accumulation and consumption. If one keeps in mind these enormous economic consequences of cost excesses, it becomes clear what it means that while there are many enterprises that manage with cost reductions even better than planned, there are still too many of them which considerably exceed their planned costs. Those cost excesses cut into the success of the working people's cost reduction struggle, and they must induce us to fight rigorously in those enterprises as well for keeping to the costs as planned. On the whole, much more attention must be given to cost reduction in all enterprises.

What causes cost excesses, concentrating up to 70 percent on excessive use of energy and material, that is, on excessive production consumption, is to a large extent of a subjective nature. Here one must refer to some inadequate materials economy, discontinuous production, production that does not come up to the terms of the contract, mainly in terms of its quality, disorder in supplies and storage of supplies and, at times, an excessive use of the wage funds when held against increases in labor productivity. In the final analysis, it is all due to an insufficiently purposeful management activity.

On the enterprise level too, cost reductions for important cost positions or in certain cost categories often are of no avail because they are then in many cases used up again through cost excesses in cost categories of other fields. That makes it all the more important to struggle for high cost discipline in every field, every brigade, every job. Experiences of many party organizations have confirmed that this to a large extent is a matter of assuming the correct political-ideological attitude toward the work of others and that it reflects the attitude taken toward production efficiency, the full use made of one's own reserves, and socialist economizing. The competitive balancing of accounts is another method leading to high cost discipline. It will honestly and accurately show the collectives and figure out on the basis of comparisons, balance in other words, the positive results versus the self-induced excess costs and periods of loss, so that only the truly effective and final competition result shows up. It is a method which has resulted in good experiences at Zwickau's VEB machine factory, for example, and deserves to be emulated.

#### The Principal Cost Reduction Leverage: Scientific-Technical Progress

Attaining economically effective results in the struggle for cost reduction makes high demands on the management and planning in the combines and enterprises. It all starts with an accurate and mobilizing planning of costs and of their reduction. This must proceed--as shown by experiences in progressive combines--from high economic targets in the science and technology plan, the investment plan and other parts of the plan, and from making the fullest use of the working people's initiative. In connection with it, planning should have for its basis high goals in reducing the specific material consumption, possibly improving on the state norms and parameters.

Boosting outputs and enlarging production volumes also help reduce costs because there is a not insignificant portion of the costs--which is constantly growing due to scientific-technical progress--that is in volume relatively independent of the volume of production (constant or fixed costs). We thus get more of a cost reduction per production or commodity unit, the more our basic assets are used to capacity and the larger the production volumes are--the size of series, the number of units. This aspect of cost reduction is of course not only of importance for production in process. Also, and especially, through the development, transfer and production of new commodities it is to be taken into account that the volume of units to be



produced plays a great role because the fixed costs are going up and often the initial developmental costs are very high. Thus it is easier to reach the goal of a high growth of use value through minimal costs when the number of products that have to bear and realize the fixed costs is larger.

Cost planning meets its purpose when it not only passively reflects the expenditures incurred in other parts of the plan but when it is used as an active tool for disclosing efficiency reserves. Among the questions it must raise are whether the economic requirements are in line with the planned scientific-technical measures, the rationalization projects and others, and with the requisite criteria of today, whether these objectives are also basic to the norms and other partial plans, and whether the proper emphases are placed for producing proper as to demands and with high efficiency. And that holds true not only at the range of a combine and enterprise but just as much for requirements in specific areas and work collectives.

Cost reduction thus is not a mere departmental matter of concern to a few specialists but is an imperative task for every manager and calls for involving all the working people, from the scientists, engineers, technologists and economists in production preparation all the way to the production workers. Enabling the managers for such economically responsible task and creating with them, and based on the trade union organizations, a creative atmosphere for optimum cost reduction are important tasks in the party organizations' political leadership activity.

What it also entails is to make every working person aware how importantly the systematic reduction of costs strengthens our republic's economic efficiency and secures and further develops his own standard of living, and how he himself can contribute to it. Cost reduction means--and this has been concretely demonstrated by competition initiatives in progressive combines and enterprises, for instance in the VEB Carl Zeiss Jena combine--first and foremost, the purposeful economic utilization of scientific-technical progress, a rigorous basic assets and materials economy, a rational employment of the social labor capacity and highly efficient production specialization and cooperation. It is in this sense that the party has kept reiterating that costs are an incorruptible yardstick for the effectiveness of intensification--spelled out in mark and pfennig. "For deepening our intensification the important thing is to attain highest results through minimum effort in all areas. An important criterion for it is the steady cost reduction for social production. Cost development gives compact expression to the outcome of labor, of management quality and of all intensification factors in each enterprise and at each job."<sup>3</sup>

Advances in intensification must not blind us to the fact that its effect that seeks a reduction of the input in live and embodied labor can and must still be enhanced significantly. Nowhere should one be satisfied in being shown high labor productivity growth rates as long as the costs per commodity or production unit fail to decline commensurately. In such

instances, the labor productivity in the economic sense does not increase at equal measure, partly because the increasing production achievements and the reduced effort in live labor still made for too high an expenditure in embodied labor, the materials economy did not yet meet the higher requirements or various types of losses were tolerated, for instance in the quality and continuity of production. Unity therefore must be preserved, above and beyond the measure we are accustomed to, in the struggle for high labor productivity and for increased cost reduction.

### Understanding the Main Points of Cost Reduction

Cost reduction implies ideological work. For it is necessary to understand the need for reducing costs for the benefit of all through the participation and full dedication of each. The search for reserves must be initiated here, ideas must be generated and enforced. That will become all the more effective the more one can rely on clear analyses and on accurate knowledge about cost structures. Where then must the emphases be placed here?

Great savings in costs are needed in the field of energy and materials consumption. Those costs amount to more than two-thirds of total production costs. Economic expenditures for securing our energy and raw materials supply have risen to unprecedented levels because of the development of world market prices and the conditions of our own raw material extraction. Saving energy and material at significant magnitudes therefore demands of us aiming the requirements for the science and technology plan and for rationalization, for the innovator movement and for socialist competition still much more strongly at it. Considerable reserves can be tapped by improving the volume-capacity ratio of the products, by applying energy and material saving designs and technologies, by improving the quality of products and by using progressive material consumption norms.

It is necessary to keep the material consumption norms at the always latest levels, fully to work in the results of the materials economy measures, and to make these progressive norms the basis also of the plan and of other requirements such as the competition and budget accounting.

Saving material calls for targeted scientific-technical measures to a far higher degree still. Assigned its proper place in the competition programs, a veritable mass movement must be generated by it. There are brigades in a growing number of enterprises, for instance, which are following the Soviet model in producing more goods without using more material and in working one day each month only with material that was saved. This is a method that is being used with much benefit at SDAG Wismut, in the VEB NARVA combine in Berlin, at the VEB Ernst Thaelmann heavy machine construction combine in Magdeburg, at the Berlin VEB plant for television electronics and in many other places. This way, for instance, the working people at the VEB NARVA produced 350,000 light bulbs from saved material in 1978.

Important cost reduction reserves are found in quality work, high-grade production that stands up well for a long time. Production and consumption needs are better satisfied thereby, and material and labor are saved, through a longer working life, for instance, and through reducing the costs for rejects, make-up work and warranty services ("ANG" costs). All these costs affect the national income annually up to a magnitude of almost M 2 billion. Mass movements like those with the slogans "Each Supplies Each With Quality" or "Notes on Quality," and the contests for the titles "Collective of Excellent Quality" and "Quality Worker," and others pertaining to budget accounting in the collectives and at the job are having an increasing effect on radical cost reduction.

Socialist thrift calls for unity between high quality and low costs. It calls for making a still more extensive use of the proven method of use value-cost analysis for optimizing production costs, not only for products already in production but also, and especially, for the production preparation for new products.

Reducing management and administrative costs always is a main focal point. Administration also needs rationalization. Thus, with the formation and consolidation of the combines, it also becomes important to reduce management costs through rational organization, clear management structures, and more of a use of ADP and other modern techniques and methods. Sound management activity can also make sure that irregularities in planning are spotted early and eliminated. And when production shows a high degree of continuity and the output keeps on the level on which it ought to be, one can reduce and eliminate what today often still are high expenses not anticipated in the plan for contract fines, making up damage, stallage rent money, penalty interests and additional expenses of other kinds.

Cost reduction means contributing, through political-ideological work, to the rational use of the labor capacity and to making full use of working hours in the enterprise. That improves the effectiveness of intensification measures and reduces idling periods and downtime as well as overtime hours. This and the rigorous application of the principle "New Technology--New Norms" within scientific labor organization (WAO) also is important to reach the kind of developmental ratio between labor productivity and average wages where labor productivity on the rise will benefit the individual, by higher wages, as well as society, by declining costs and thus, by higher benefits.

Saying all this we must make the special point that to a large degree it is already during production preparation, in the scientific-technical, technological and production organization work where the decision is made on what the costs will be. And that is why the special concern of the party organizations' political leadership activity must be implacably to enforce comparisons with top world standards, not only with regard to the use value parameters of the commodities but also with respect to the technologies under which they are produced. The "top product calls for top technology"

slogan is something more and more working people, especially those in production preparation, and particularly also the innovators and best workers, are adopting as their own battle cry. Cost reduction thus also, and mainly, means a personally committed, aggressive, risk-oriented posture in scientific-technical work itself.

#### Task and Result of the Initiative of All

In many ways, it turns out, an extensive cost reduction to the extent demanded today, with the strengthening of the GDR's economic efficiency at new magnitudes, is all working people's business. And here one must keep in sight a very simple truth: he who wants to reduce the costs must know them! That demands of all managers in the combines and enterprises that they supply the working people with information, orally, in writing and even through visual aids on what the production costs of products are, how much weight in value attaches to every minute or hour of working time, to every gram or kilogram of material and to every machine hour; where the focal points lie for cost reduction and for avoiding losses in an enterprise or industrial area; which concrete contribution any working person may make in the scientific-technical areas, in production, in procurement and in sales; what the experiences and methods of the best workers are and how they ought to be applied everywhere; and on the targeted stimulation of the working people's cost reduction initiatives.

The concrete information the managers supply on these matters and the commensurate requirements and status reports are importantly prerequisite to vividly organizing socialist competition that yields high economic results. That also mainly means breaking down the plan tasks including their adaptable costs in terms of each brigade and each job. And equally much part of it is organizing the struggle for highest efficiency purposefully and starting with the very first day of the year.

For example, for years the collectives in Berlin's VEB light bulb plant of the NARVA combine have received daily information on how many products the plan calls for, how much material is allocated for it, what qualities are demanded and how much it may all cost. In the work areas and with the assistance by the economic training facility, targeted information is provided on how possibly to reduce the costs. Cost reduction programs have been found useful here as well as in the enterprise in the industrial branch for mining, metallurgy and potash, for instance in the VEB Wilhelm Pieck Mansfeld combine and in the VEB potash combine of Sondershausen. They contain, for products, areas and collectives, differentiated control and accountable measures for covering the planned prime cost reduction. They are a sound information and control instrument for each management level and provide important handles for a targeted political-ideological work on cost reduction. In making these programs perfect, it is important to combine them with their use value documentation as provided in the science and technology plan, the investment plan, the innovator plan and other plans. Many enterprises have benefited from the work of volunteer



cost control personnel with the initiative-rich and systematic assistance they give to management activity in the struggle for avoiding losses and tapping cost reduction reserves. It must therefore be a vital concern of the party organizations to see to it that the results of this volunteer work are expeditiously analyzed, appropriate changes are instituted, and outstanding services by the cost control personnel are properly recognized, materially and morally. The moral and material stimulation of the struggle for low costs is altogether an important aspect of purposeful management activity. Full use must here be made of the possibilities provided for by economic regulations, so that cost reduction will become of benefit for the economy on the whole, for the industrial collectives and for each and every working person.

Prime cost reduction is not a campaign but a principle behind thrifty socialist economic management. Under current conditions it must become still much more of a principle. Producing too costly results in losses that are irretrievable. But a steady reduction of prime costs based on the intensification of the reproduction process allows for higher efficiency. Taking this course more resolutely will significantly help improve our economic efficiency and make an important contribution to our implementing our program on growth, prosperity and stability.

#### FOOTNOTES

1. Erich Honecker, "Great Achievement in 30 Years—Great Goals for the Future," NEUES DEUTSCHLAND, 7 October 1979, p 4.
2. Comrade Erich Honecker, "Aus dem Bericht des Politbueros an die 8. Tagung des ZK der SED" (From the Politburo Report to the Eighth SED Central Committee Session), Dietz publishing house, Berlin, 1978, p 27.
3. "Direktive des IX. Parteitages der SED zum Fuenfjahrplan fuer die Entwicklung der Volkswirtschaft in der DDR in den Jahren 1976 bis 1980" (Ninth SED Congress Directive on the Five-Year Plan for the Development of the GDR Economy, 1976-1980), Dietz publishing house, Berlin, 1976, pp 22-23.

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IMPROVED METHODS FOR AGRICULTURAL RAW MATERIAL PRODUCTION DISCUSSED

West German Commentary

Bonn IWE-TAGESDIENST in German No 185, 6 Dec 79 p 2

[Report from Berlin: "SED Dissatisfied With Agricultural Yields." A translation of the East Berlin EINHEIT article cited below follows this commentary]

[Text] The SED organ EINHEIT has demanded that GDR agriculture and forestry should further increase their yields in future years. Domestic increases in agricultural and forestry raw materials like grain, sugar beets, animal products and lumber was of increasing importance, especially since farm product prices on the world market had in many cases risen by multiples. Not only foreign economic consequences resulted from that, but the world agricultural market with its price explosion was to an increasing degree turning into a field of "class conflict." As means for increasing yields the journal mentioned greater efforts for preserving and improving soil fertility, more technization and mechanization of the agricultural enterprises and raising lucrative crop varieties and animal species. (EINHEIT 12/79)

Agricultural Scientist's Discussion

East Berlin EINHEIT in German Vol 34 No 12, Dec 79 signed to press 7 Nov 79 pp 1282-1287

[Article by Prof Dr Erich Ruebensam, member, SED Central Committee; president, GDR Academy of Agricultural Sciences: "Our Agriculture as Raw Material Supplier"]

[Text] In strengthening our economic efficiency, an important role attaches to agricultural raw material production. How can the working people through more efficient labor make better use of the soil as the natural source for raw material production? Which tasks have

to be solved here by production intensification, and how do we raise our yield potential and stability in crop and animal production? In answering these questions, the article points to the particular need for close co-operation between the agricultural sciences and production.

In stable and constantly improving supplies of high-grade foodstuffs for our population, and of raw materials for our industry, based on the further production intensification and rigorous application of scientific-technical progress,<sup>1</sup> as decreed by the ninth party congress, lies an important contribution by the working people in agriculture, forestry and the foodstuffs industry toward a continued successful implementation of the main task. By increasing foodstuff and raw material production through efficient labor--for which agricultural science has to establish the requisite leads--they are strengthening our country's economic efficiency. Efficient production becomes all the more important since domestic reproduction conditions have changed and lengthy processes in foreign economics are under way marked by further price increases for raw materials and energy sources.

#### Safeguarding the Demand for Agricultural Raw Materials

Agriculture, forestry and the foodstuffs industry are an important branch of our economy, their share in its gross product being nearly 20 percent. Our agriculture and forestry yield two-thirds of the GDR economy's domestic primary raw material production. That exceeds the value of the fossil fuels produced more than fourfold. Whereas in other branches that supply raw material, as in the coal, petroleum and potash industries, raw material deposits diminish through their extraction, agriculture and forestry are in the position to expand the reproduction of raw materials through a rational use of live and embodied labor and through a better utilization of the gratis productive forces of nature<sup>2</sup>--the natural fertility of the soil and the use cultures can make of the sun's solar energy. Obviously, it is of far-reaching importance to make the fullest use of this advantage for our country that has only limited raw material resources.

Our agricultural raw materials and the products coming from them are mainly used to feed people, to satisfy vital needs. They must be available every day as public supplies in adequate volumes and necessary assortments in all parts of the country. To give an idea of the magnitudes involved: every day 5,000 heads of cattle, 33,000 hogs, 280,000 pieces of poultry, between 13 and 14 million eggs and 22,000 tons of milk must be available. And those products are not replaceable by others in the foreseeable future.

The share of agriculture and the foodstuffs industry in total individual consumption amounts to 46 percent. Some 91.3 percent of our foodstuffs production comes out of our own domestic agriculture. In such important

products as meat and meat products, milk, butter, eggs and egg products, we have relied completely on our own domestic production since 1973 although consumption has been increasing. And here one must remember that only a small part of our gross agricultural product, like fresh eggs, fruit, vegetables and eating potatoes, serves as direct food supply. Circa 85 percent of agricultural food products must be industrially processed and commercially treated to become available for individual consumption. Farm products, however, are not only raw materials for foods but also for products of such industrial branches as the light and chemical industries and are made available as industrial commodities to consumption at a total value of M 1 billion.

Securing our republic's raw material base not only requires high yields in crop production but also requires harvesting, storing and conserving everything that is grown while incurring a minimum of losses and to treat and process it with the smallest possible waste. That is true for products that feed the population directly as it is for those that are industrially processed, like sugar beets, starch potatoes, and rape. The same holds true for products that reenter agriculture as means of production, like fodder and seed good. Reducing losses in storing such products is tantamount to boosting our raw material production. Of outstanding importance is reducing forage conservation losses, especially during ensilage. Through our silo construction program, preconditions are currently being set for reducing losses further. What is true of crop production applies equally much to our animal production, where high results in breeding and increased achievements in our cattle stocks help enlarge our agrarian raw material production.

By far the largest part of our agricultural raw materials that will be further processed industrially has already gone through processing in the enterprises of the foodstuffs industry, such as skins and hides, potato and corn starch, dextrin, oils, fat, molasses, white sugar, glucose and milk powder. This altogether amounts to raw materials at a value of circa M 3 billion annually. Most of these raw materials are processed to serve public demands. Getting a high yield from these raw materials and insuring high-grade products is an essential component of the materials economy in the processing industry and a contribution to assuring public supplies and agrarian raw materials for industry. This is, as it were, a shared responsibility between the processing industry and agriculture and forestry.

Our forestry in 1978 made available 8.9 million cubic meters of lumber for our economy. Forestry raw materials are used in many industrial branches such as the cellulose, packing and paper industries, in the building trade and in the furniture industry. Having 4,000 different applications, wood occupies a prominent place among our bulk raw materials.

We are getting at present, for instance, approximately 2.6 million cubic meters of wood chips annually in the GDR, of which only 54 percent is used

for producing cellulose, slab materials, charcoal, wood concrete and some other commodities. In view of the critical raw material situation, scientific projects are given a wide field here for effectively using agricultural raw materials in industry in ways that go beyond what has been done so far, for instance for producing energy and in chemical conversion. Additional reserves may also be tapped by making a total use of cellulose-containing plants.

These examples are meant to make clear that increasing importance attaches to raising our domestic agricultural and forestry raw material production like grain, potatoes, sugar beets, animal products and wood, especially since the world market prices for agrarian products have gone up by multiples. This has not only foreign economy consequences. Due to the price explosion the world agrarian market is increasingly turning into a field of class conflict. After all, the imperialist countries, especially the United States, are seeking to exploit the market for farm products and the world food problem as means of political and economic pressure, gain an influence on the political and socioeconomic orientation of the developing countries, and affect the development of the socialist countries. To make that perfectly clear and have it generally realized that the expanded reproduction of our agricultural raw materials is an issue that is gaining increasing importance in the international class struggle belongs among the tasks of our party's ideological work. The consequence of this work must be to enlarge our agricultural raw material production and handle raw materials thriftily. Even when acreages are limited, production can be expanded. That is clearly demonstrated by the GDR's 30 years of history. From 1949 to 1978, our crop production doubled. Grain yields per hectare rose from 18.1 to 38.6 decitons. In comparison with 1949, our state produced 9.5 times as much fat stock, 5.5 as much milk, and 22 times as many eggs.

An expanded reproduction of agricultural raw materials is of course subject not only to economic laws, but greatly also to natural laws, which helps explain what is peculiar to agricultural production when compared with industrial production. The soil, for instance, is not only its production site but it is the main means of production and is not augmentable in scope. Agricultural production implies living organisms. Not last, crop production is greatly dependent on the weather and on the seasons.

This dependency on natural conditions implies the possibility of yield fluctuations and sets certain limits to boosting agricultural raw material production within a brief time span. "It is due to the nature of the matter that plant and animal materials, the growth of which is subject to certain organic laws controlling natural cycles, cannot suddenly be increased to the same degree as, say, machines."<sup>3</sup> For science and technology this results in the task to find new possibilities for raising and stabilizing agricultural raw material production by increasingly affecting and dominating the processes of nature. The point in all this is to reduce expenditures per unit of product by wresting higher yields from the gratis productive

forces of nature. It is a task for the solution, and the most rapid application of results in practical operations, of which all science disciplines concerned are called upon to do what they can.

### The Soil--An Inexhaustible Source of Social Wealth

The soil, being the main means of production, is of fundamental importance to the production and reproduction of agricultural raw materials. Its fertility principally determines the volume and stability of the yields in crop production. That is the basis for all raw material production in agriculture.

Compared with other means of production, like machines and equipment, the soil, if properly used, does not come under wear and tear. It rather maintains, or still improves, its use value. "In rapid productive force development," Karl Marx wrote, "all the old machinery has to be replaced by more advantageous machinery, which means it is lost. The earth, however, properly treated, constantly improves." And the advantage the earth has simply is "that successive capital investments may bring benefit without previous ones being lost."<sup>4</sup>

Because the soil, being one of the most important raw material sources, is among our greatest social treasures, the reproduction of soil fertility is a social concern of the first rank.

Maintaining a highly productive use of the soil while systematically improving it implies that we should further develop the means for regulating the chemical, physical and biological soil characteristics and the water budget, should apply them to the extent necessary and get stable and high yields, through careful agriculture, even under changing climatic conditions. Wherever enterprises pay special attention to the soil, reliable yields are assured for many years. Cautious, structure-preserving field working, meliorations, supplying the soils with organic substances, regularly scheduled crop rotation, optimum use of mineral fertilizer, drainage and irrigation, and introducing new technologies are essential for high and stable yields because they preserve and improve the soil fertility and are important preconditions for making better use of the gratis productive forces of nature. All this requires efforts by science for creating efficient solutions for an expanded reproduction of soil fertility under the conditions of industrialized crop and animal production and while keeping aware of differences in conditions in various locations.

### Complex Intensification

An important precondition for having agriculture and the foodstuffs industry increase agricultural raw material production by boosting and stabilizing the yields and performances of crop and animal production lies in complex intensification, which includes rationalization and reconstruction. The thing that matters most is to make better use of all we have got, the soil



as much as the machines and buildings, energy and material, and to use water with increasing efficiency. Of crucial importance for it is "that strong and permanent acceleration of our scientific-technical progress which must more and more guarantee our economic growth."<sup>5</sup> Complex intensification here proceeds over a long period of development and in interaction with the continued and continual transition to industrialized production methods. Included in this process is our perfecting the material-technical base of agriculture, in accordance with social requirements and possibilities.

It means gradually transforming the ways and means of the production of crop and animal products in accordance with industrialized production methods and, in particular, creating complex machine systems and modern technologies. The specific agricultural means of production, the soil, and the plant and animal organisms must be further improved. Our aim is enhancing the yield and performance potential of the cultured plants and domestic cattle and increasing agricultural raw material supplies. Equally much, the yield and performance potential of plant and animal stock must be better utilized, and the effectiveness of the intensification measures must be improved. That is served, for instance by perfecting ADP projects that have already stood up well in practice for optimizing the application of organic and mineral fertilizer, herbicides, irrigation and technical aggregates. Furthermore, there are possible combination effects from which more value may be derived by the use of mathematical-cybernetics methods and, especially, through system analyses.

Through means of production like machines, equipment, vehicles, mineral fertilizer, herbicides and insecticides, industry significantly affects the material-technical level of agricultural production, which also includes the processes of storage, the volume and stability of yields and services, and the magnitude and development of labor productivity and of the costs.

These preparatory industrial accomplishments significantly shape scientific-technical progress in agricultural production. With the growing dimensions of farm production there also grows the responsibility of the scientists and designers for developing and manufacturing the kind of machines and equipment that have high labor, material and energy economy features, great technical applicability, a high degree of operational reliability under changing weather conditions, while they preserve the crop production and are easy on the soil structure and so forth. Means of production that conform to such demands directly or indirectly contribute to boosts in agricultural raw material production. In order for us to obtain this result, it is necessary that agricultural science together with R&D in industry come up with concepts on the lead time required and make it all come about through their close cooperation. The users also are getting more of a responsibility in their having to properly use, maintain and service this modern technology, having to handle it with economic responsibility.

## Breeding Enhances Yield Potential and Stability

Breeding is an important and effective intensification factor both in crop and in animal production. With more efficient varieties and species surplus yields and performances are possible without any large extra expenditures, especially without further investments in production enterprises.

The focal point in breeding continues to be placed on improving yields, performance and qualities. What matters here is that the goals in breeding are in line with the requirements and preconditions of production for the time period when the newly bred varieties become effective. Great efforts have to be made toward further improving the qualities of harvest crop, particularly toward raising the crude protein and lysine content in feed grain and granular legume to better satisfy the protein requirements for animal stock. Breeding also makes a significant contribution to stabilizing the yields and performance, for crops mainly by improving their resistance and their suitability for industrialized production methods. Special attention, for instance, is warranted for explaining resistance mechanisms against the most important pests and the causes of resistance or tolerance.

Breeding can provide important support to meeting agro-technical deadlines. Through breeding for early or late seeding periods and for expanding ripening periods, cultivation can be extended over longer time spans. That reduces the dependency on weather conditions and leads to better labor distribution and to a higher capacity use made of special equipment.

Breeding also allows for a higher nutrient utilization and a more rational water consumption by the plants and makes changes possible in the growth and vegetation of the plants. Other important assignments of breeding lie in improving the taste qualities, the ingredients like protein, vitamins and so forth and the health properties of the harvest crop.

Quality maintenance also includes that the harvest products stand up well under mechanical stress as it occurs under industrial production methods. The breeders as well as the designers of our cultivation and harvesting machines, and of our transportation and hoisting equipment, are working on the solution of that problem.

Animal breeding has tasks that are as important as those in crop breeding. General goals of breeding here, apart from a higher performance capacity (for instance, more meat, milk, wool or eggs), are improvements in load carrying capacity, in fitness and fertility under industrialized stress conditions. Special importance attaches to achieving a great share of high-grade fat stock products and a better livestock feed management.

We expect important advances from new data in basic biological research, especially in genetics, physiology and biochemistry, and from their use in crop and animal breeding. The collaboration between research on breeding and breeding operations themselves must therefore be deepened.

## Close Cooperation Between Science and Production

For making economic use of the data worked out by agricultural science it is imperative that science and production work closely together. Much value has been found in the collaboration among scientists, cooperative farmers and workers from institutions and enterprises in various areas, within the scope of the 24 research cooperation communities and their working teams on priorities in the science and technology plan, and in the joint breeders' communities of the Academy and the VVB Saat- und Pflanzgut (seeds & plants). Good advances have been made in the science cooperation with the GDR Academy of Sciences and the competent academic facilities and industry. The cooperation with partners in the Soviet Union and other socialist countries has deepened.

Rich cooperation has evolved between the science institutions and the VEG's, LPG's and GPG's and their cooperative facilities. They are concerned with jointly solving R&D tasks, with large-size experiments under operational conditions, application assignments in first-time use situations, analyses and conferences and experience exchange. In addition, agricultural science has taken part in organizing "Agra" and "Iga" and in furnishing advanced training for specialists in crop and animal production.

Rural social development has created good conditions for making more efficient use of what has long proven itself and for developing innovations through science-production cooperation. Something new that has been found useful is our jointly conducting competitions by seven science institutions with two VEG's and three crop production LPG's of the Agrar-Industrial-Association (AUV) of Wanzleben for jointly solving research, testing and application tasks, and so have the close connections of institutes with enterprises in the AIV's of Berstede, Fehrbellin, Friedland, Kroepelin, Oderbruch and Querfurt--a cooperation that is of benefit to all participants.

Valuable experiences have been gained from an activity that has gone on for more than 2 years: that of the Science-Production-Association (WPV) for Fruit Production in the fruit growing area near the Havel. Through cooperative cooperation among the eleven institutions and enterprises in the WPV, a stronger concentration mainly was achieved of the research capacity of the member enterprises and their cooperation partners on industrialized fruit production and on a complex solution for the research and application tasks, which brought advances in qualitative and quantitative improvements in fruit production.

The scientists and associates of the research centers and institutes of the GDR Academy of Agricultural Sciences and of all science institutions in agriculture, forestry and the foodstuffs industry, under party organization leadership, devote all their strength to coming up with results that will distinguish themselves through high reliability and economic usability and will have a marked effect on the progressive international level. This creates important prerequisites for increasing the production of agricultural and forestry raw materials and for their efficiency, and for a growing

contribution by the working people in agriculture, forestry and the food-stuffs industry to efficiency improvements in our economy and to a continued elevation of our people's material and cultural standard of living.

#### FOOTNOTES

1. Cf. "Programm der Sozialistischen Einheitspartei Deutschlands" (SED Program), Dietz publishing house, Berlin, 1976, p 30.
2. Cf. Karl Marx, "Das Kapital," Vol III, Marx/Engels, "Werke" (Works), Vol 25, Dietz publishing house, Berlin, 1964, pp 753-754.
3. Ibid., p 128.
4. Ibid., p 789.
5. Comrade Erich Honecker, "Bericht des Zentralkomitees der Sozialistischen Einheitspartei Deutschlands an den IX. Parteitag der SED" (SED Central Committee Report to the Ninth SED Congress), Dietz publishing house, Berlin, 1976, p 73.

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GERMAN DEMOCRATIC REPUBLIC

NEW BOOK ON NATIONAL ECONOMY REVIEWED

East Berlin EINHEIT in German Vol 34 No 12, Dec 79 signed to press 7 Nov 79  
pp 1314-1316

[Review by Prof Dr Gerhard Scholl, department chief, State Planning Commission, of "Die Volkswirtschaft der DDR" (The National Economy of the GDR), edited by Schulz, Stiemerling and Poeggel, Academy of Social Sciences, SED Central Committee; published by Verlag Die Wirtschaft, East Berlin, 1979]

[Text] Improving our country's economic efficiency is the central question for further advances in all domains of public life. That observation, made at the 10th Central Committee session of our party, is persuasively borne out by the more than 30 years of steady development in our national economy and all other public domains connected with it. The purposeful and systematic implementation of this objective context was, is and will be in the future our guideline for action in all areas of the economy. Otto Reinhold was right in starting out his preface for the book, "Die Volkswirtschaft der DDR," which was prepared by an authors' collective and edited by Schulz, Stiemerling and Poeggel, with the following sentences: "In moving toward developed socialism, social progress depends more and more on economic growth. That precisely is why under SED policy growth, prosperity and stability form one inseparable whole." (p 10) This objective and inseparable connection under socialist conditions between growth, efficiency and performance on the one side and improvements in the material and cultural standard of living, on the other, the unity between economic and social policy and the ways for getting there--therein lies the overriding idea of the book.

How shall we classify this book, published on the occasion of the 30th anniversary of the founding of the GDR?

Is it a book about the successes in the 30 years of development planning for the national economy of the GDR and its various branches? Does it explain and present the party's strategy and tactics throughout the various phases of socialist construction? Does it show how our party applies in economic practice the lessons of Marxism-Leninism under our concrete-historic conditions? Does it explain--while proceeding from an analysis of economic development thus far--which tasks have to be solved in the



further shaping of the GDR's national economy? Does it show how we can insure constantly new successes for the economic development of the GDR through the planned management of the society and the economy and their steady improvement? It doubtless attests to the excellence of this study that all those questions can be answered in the affirmative. All these and other fundamental problems of our past, present and future economic development are treated, analyzed and convincingly presented in their complexity and interconnection and within the scope of our overall social development, documented by a wealth of facts and carefully chosen statistical data. The book is a goldmine of knowledge about our national economy, the ways through which we arrived at such an efficient economy, the difficulties we had to overcome while getting there, and the problems we have to cope with today. While having scientific depth, it is written in a popular vein for anyone to understand. It is an economic analysis, propaganda tract, textbook and statistics compendium on the national economy of the GDR.

Compared with earlier publications similar in kind, what stands out is that the national economy of the GDR is treated not only in its crucial main areas, for instance in terms of the production field in industry, agriculture, the building trade, transport and so forth. What stands out is the problem-rich presentation of the national economy, its penetrating, detailed, and thus its informative and persuasive analysis and interpretation.

In the industrial field, for instance, along with the treatment of the most important industrial branches, questions of structural changes within the branches and even developmental trends of important commodity groups are dealt with and evaluated in economic terms. In some cases the presentation even leads to international comparisons in qualitative and quantitative terms. That precisely would it have made desirable, however, to pay more attention to the matters of the production and broad application of micro-electronics (pp 100, 145) because it, after all, is what significantly affects the growth, quality and efficiency and even the structure of our national economy.

In the treatment of agriculture and its development, this branch is correctly, from the outset, placed in the center, as part of the economic agriculture and foodstuffs industry complex. In pithy form and yet with much detail, the enormous change in rural production relations throughout the last 30 years is presented. This is more than a description of what our agriculture is like today, what it can do and how it has developed. Here the book shows with reference to the various phases and the results achieved in them, how under socialist conditions, and on the basis of our party's alliance policy, a largely destroyed, backward and mostly extensive agriculture was fashioned into a modern, efficient and intensively producing economic branch, closely intertwined with the other branches of the national economy (cf. chapter 6).

In general the point must be made that the development of the various economic branches is always placed in an economic context where the branches

are treated and assessed in relation to one another. By adopting their historical approach in the various sections, the authors at the same time have managed to describe the developmental process in such a way that the planning aspect in the systematic development of our national economy is given clear, substantive expression. This clearly elucidates the stable, science-based strategy and tactics of our party in the process of the qualitative and quantitative development of the material-technical base of our economy and the solution of development problems that have arisen thereby.

Our national economy's socially necessary growth is of course not only quantitative in kind. Not only steadily greater output is what is needed in the various branches and areas. Qualitative processes are what is mainly needed in the production and performance of our economy, while we must constantly assure that demands are properly met--which also includes permanent proportionality among the areas and branches. Changed production qualities result from the changes in the demand structure on domestic and foreign markets, from the situation in assuring economic energy and raw material requirements, and from the necessary increase in labor productivity in view of nonexistent additional manpower and so forth. The production growth our economy needs can thus come only from greater efficiency in our reproduction process through intensification. Science and technology therefore play a key role for insuring our steady economic growth. "Our economic strategy relies on scientific-technical progress, its acceleration and its increased economic and social effectiveness."<sup>1</sup>

Proceeding from that statement, and based on the directive for the 1976-1980 Five-Year Plan, the book treats the scientific-technical requirements for the branches and areas in the economy and explains the most important tasks and methods in the management and planning of science and technology within the scope of the complex reproduction process. It shows how important the scientific-technical potential has been that we were able to develop in past years, on what we are concentrating that potential in conformity with social and economic requirements, and how we are deepening our research and production cooperation with the USSR and the other fraternal socialist countries (cf. especially chapter 4).

The authors devote special attention to the scientific-technical work of the combines since they are the units that combine in themselves the biggest part of industrial research and on that level primarily the close connection between science and production is possible. In the combines the most favorable prerequisites exist for rapidly applying scientific-technical data in production, and for growing efficiency (cf. pp 112 ff).

None of our economic development thus far and none of the present possibilities for continued qualitative and quantitative progress can be detached from their close and increasing interlinkage with the economies of the USSR and the other socialist countries. The basis for that lies in the identical socialist production relations in all CEMA countries, and in their relationship of comradely cooperation and reciprocal socialist assistance. That

at the same time also turns the development of our national economy into the history of steadily growing fraternal cooperation, especially with the USSR. The book compellingly presents how the birth and growth of the GDR in its entirety, being a part of the main force of our era, depend on our country's being anchored in the socialist community.

Of particular importance to the current energy and raw material situation in the world is the fact here that the decisive share for meeting our economic raw material and fuel requirements has steadily been delivered to us from the USSR. From this particularly derives our high political and economic obligation to meet always, proper as to qualities and deadlines, our foreign trade deliveries to the USSR and the other socialist countries. The same holds true for the obligations the GDR has assumed to our investment participation because our joint raw material extraction forms an important material foundation for the continued growth of our economy after 1980 and for our continuing our economic and social policy.

Measured against international technological standards, the GDR by itself--although it is a developed industrial country--objectively is not in the position to solve all its science, technology and production problems. Socialist economic integration therefore is a vital need for the further growth of our economy through increasing efficiency by way of intensification. That proceeds also with regard to our expanding our world economic relations. By also using our grown economic capacity in trading with the nonsocialist economic region--on the basis of mutual advantage--we also more rapidly solve the problems of socialist construction and strengthen our material-technical base.

Without scientific-technical support from the USSR and its assistance from the very beginning, the GDR could never have developed its modern, efficient economic structure. The agreements made in recent years on deepening our research and production cooperation, on production specialization and on the intensification of scientific-technical relations between our two countries, and the preparation and systematic implementation of long-term target programs for important economic complexes within CEMA, have been and are decisive foundations for the stability and steady growth of our economy.

Based on all these positive results and experiences, it became possible on the occasion of the 30th anniversary of the founding of the GDR to sign the international specialization and cooperation program between the economies of the GDR and the USSR for the time up to 1990, which opens new ways to the qualitative and quantitative growth of our economy.

The book "Die Volkswirtschaft der DDR" comprehensively presents the substance and great importance of the USSR's and the other socialist countries' comradely aid and cooperation with the GDR for the development of our economy and describes the social and economic effect that has on our country (cf. especially chapter 10).

The book was published simultaneously in the GDR and the USSR. "That fact not only is an expression and consequence of the fine cooperation between our two countries' Marxist-Leninist social scientists, we also find something symbolic in it. Whenever there is talk of the advantages and impulses of socialist society in the GDR, what we always think of then, first and foremost, is the friendship and cooperation between the USSR and the GDR" (p 10).

#### FOOTNOTE

1. Erich Honecker, "Die Aufgaben der Partei bei der weiteren Verwirklichung der Beschlüsse des IX. Parteitages der SED" (The Party Tasks in the Continued Implementation of the Ninth SED Congress Decisions), Dietz publishing house, Berlin, 1978, p 38.

5885

CSO: 2300

DISSIDENT SOCIOLOGISTS INTERVIEWED ON ECONOMIC REFORM

Vienna WEINER TAGEBUCH No 1, Jan 80 pp 17-19

[Interview with the Hungarian intellectuals Hegedus, Foldvari and Zsille:  
"Hungary: End of Reform?"]

[Text] In the middle of November, the WIENER TAGEBUCH had an opportunity to conduct an interview on the economic development in Hungary with three representatives of the critical Budapest School of Sociology. Below is a part of this interview.

The participants:

Andras Hegedus, born in 1922. During the war he was a member of the illegal communist youth movement. Because of his activities he was sentenced to 2 years in prison. Between 1955 and 1956 he was chairman of the Council of Ministers. Subsequently he was engaged in economic and sociologic research. Between 1963 and 1968 he was the director of the sociologic research group at the academy. In 1973 he was expelled from the MSZMP because of his critical writings. He is retired and living in Budapest.

Tamas Foldvari, born in 1939, sociologist. He studied in Budapest, Leningrad and Oxford. During the 1960's he was working at the Sociologic Institute, under the leadership of Andras Hegedus. In 1962 he became a member of the MSZMP, he left the party after the occupation of Czechoslovakia. He has published research papers in economics and sociology. At the present time he is a staff employee at the Research Center for Pedagogy.

Zoltan Zsille, born in 1942. He studied philosophy and sociology. He was a staff employee at the Sociologic



Institute, subsequently an industrial sociologist at a telephone company. In 1973 he protested the "ban on practicing one's profession" that was issued against critical sociologists and philosophers.

In 1974 he was expelled from the MSZMP. In 1975 he lost his position as a professor at the Management Institute. Since then he has earned his living as a casual laborer. His publications are primarily in the area of social economics.

[Question] What progress and what failures have been recorded since the economic reform about 12 years ago?

Andras Hegedus: One would have to go back to the middle of the 1960's when a number of reform movements were started all over East Europe, especially under the influence of neoliberal economists--who also played an important role in the power structure. Originally, the main motive was the restoration of market conditions. In Hungary the decision was made to introduce the 1967 Economic Reform. The period of reform did not last long. There was no interference until 1970, when criticism within the party started and an antireform wing was formed. In November 1972, the opponents of the reform in the Central Committee were victorious. Among the first antireform measures was the attack against branches of small private businesses; the power of special ministries grew and at the same time the independence of plant managements was restricted. A new period began around 1974/75, when it was realized that the consequences of the measures against small private businesses had been catastrophic; there were new measures to support these branches of the economy again.

Because of oil price increases and our unfavorable balance of trade with the West, prices had to be increased to be near the level of world market prices: In contrast to 1968-1970, world market prices are passed on to businesses, particularly by central bureaucratic institutions. It does not happen in such an inflexible manner that market conditions would be directly affected. Because of it, special interests receive more latitude.

[Question] In your opinion, Tamas, has there been any progress because of the reform?

Tamas Foldvari: Yes, definitely, but in retrospect it must be said that the reform was halfhearted and that it was started halfheartedly from the very beginning. I think that already at that time many leading functionaries were aware of the fact that an economic reform which totally ignores political institutions is an impossible undertaking. A political reform, however, was taboo, particularly after the events of 1968 in the CSSR. At that time they were particularly emphatic when stating that economic reform was in no way connected with politics.

At the same time, however, there was an ideological development. There was a recognition that the party cannot always recognize and define the total social interest but that it is established through a struggle between partial interests, and these partial interests were now becoming legitimate. But, at least among "official" ideologists, there was not a single person who had thought this through to the end: If partial interests are recognized; it should also be possible to organize them; consequently, a political representation of these partial interests is also the prerequisite for the fact that such a mechanism can function.

In other words, an economic model was created; yet, they were silent on its political implications. They were silent because the international political situation forced them to be so. It was recognized that wherever even a modest economic reform was introduced, which was accompanied by changes in political institutions--as happened in 1968 in the CSSR--far-reaching consequences were unavoidable. To be exact, in 1968 it was already obvious that our reform was doomed to failure because of its half-heartedness, but at that time we had no idea that it would happen so soon. In my opinion, one of the main reasons for the failure was the fact that superdimensional plants in heavy industries were showing signs of dissolution because workers were leaving, which created chaotic conditions. There was no way that these plants could meet their production plans.

[Question] Since 1969 the general standard of living has increased between 3 and 4 percent annually. If you, Soltan, take this into consideration, what, in your opinion, are the results of the reform?

Zoltan Zsille: Considering the main goals, the reform failed more or less at the outset, i.e., beginning with 1968. I believe that the fathers of the reform--at least some of them--earnestly believed in the success of some kind of a reform program, even a limited one; they assumed that in the economic realm rationality would be more effective. Today I cannot find any of it in the plan which is dominated by large enterprises, the production goals and organizational structures of which are essentially militaristic; they are squandering a large share of the national wealth and spreading like parasites throughout the economic realm.

When enterprises are created that take on the size of an industrial directorate, it would seem safe to abolish the industrial directorate and grant independence to the enterprises. Former government employees from administrative or economic agencies were sent to the plants as economic experts and plant managers. The officials are continuing their bureaucratic economic policies as they did earlier when they were civil servants. Whereas the number of people in the ministries and the economic apparatus of the party was reduced, the same people are playing a major role in the new economic policy. They gathered their experiences while working for the government and the reform which removed them from their posts of leadership brought them defeat. Naturally, most of the time they do not admit it.

Andras Hegedus: I don't quite agree with that. In November 1972, when the opponents of the reform were victorious, there were two things they were not able to accomplish: First, the attempt to "purge" reform economists, although they were sometimes reassigned to other positions, where they can still work and help to create a breakthrough of rational ideas; second, they were not able totally to eliminate the spirit of the reform.

Zoltan Zsille: I don't agree with that.

Tamas Foldvari: In addition, it would have been difficult to admit that the reform failed. They continued playing the same "old tune."

Andras Hegedus: No, they did not continue playing the same tune. Officially, there was no mention of the reform from the beginning of 1973 until the end of 1975. But you are correct in one respect, the fact that it also was not criticized. The fact that in 1968 a reform had begun was simply forgotten. Since 1976, however, the economic reform has been mentioned again and I think that this is very important.

[Question] Essentially, the political power structure and the people have not changed. There was some reshuffling between several groups, but have there been any changes in the total strategy?

Andras Hegedus: The changes affected different groups to a differing degree. Between 1968 and 1970, the actual period of reform, conditions for employees in more dynamic plants improved noticeably, young workers left plants that were on the cumbersome side and many of the large factories began to lag behind and became outdated. When the government supported small enterprises in the private economy conditions changed for 80 to 90 percent of the rural population. I am not talking about changes in the power structure but about the kind of changes that actually affect the population. After November 1972, workers' wages were raised substantially; it happened overnight and at that time there was not enough money to cover the expenses. We are now feeling the effects of it. These expenditures, the oil price increase and other factors have caused a rise in the national debt, which must now be balanced by the government.

Zoltan Zsille: Wage increases were the result of economic battles fought by workers. The most important method was moving to plants with better working conditions; in general, they were small private cooperatives, considered the "den of iniquity." When these small plants were closed--because they were opposed by the government or because they were mismanaged, the workers returned to their former jobs, but they were getting higher wages, something they had asked for earlier but failed to get.

Tamas Foldvari: When the reform was prepared, from 1965 to 1968, when many people were occupying themselves with the analysis of the economic mechanism and discovering defects in the central planning and management system, and when a general awareness of these problems became evident, which happened

also at the time of the introduction of the reform when broad masses who otherwise are politically indifferent became active, it was possible to awaken a certain interest in the new system and a certain optimism--and that was certainly a positive aspect. The reform increased the functionality of the system, which created a relatively calm and balanced political atmosphere that lasted for some time. The disadvantage, however, was that changes that had been due for a long time were postponed indefinitely. It was presented in such a manner as if everything was related to economic questions.

Between 1967 and 1975, and to a certain degree also today, the only thing that is being talked about in Hungary is the economy. Essentially, our newspapers are only dealing with the economy. Within 10 years they managed to shape public opinion in such a manner that it concerns itself primarily with economic categories. There is a silent agreement that politics is taboo and, consequently, it does not pay to talk about it.

Andras Hegedus: I would not blame the reform for this situation, I would say that a kind of economic centralism has existed in East European countries almost from the beginning and that the social significance of the economic development has always been exaggerated. Even after they succeeded in satisfying the primary needs of the population, relatively little was said about the organization of society, the kind of life and the pattern of consumption.

[Question] Is it possible that the cause for this development is the fact that East Europe was lagging behind and, consequently, after the war it was forced to make rapid progress. Then there was the Cold War; Was that the reason why heavy industry was stressed, which caused the mistakes?

Andras Hegedus: One must not forget that in parts of East Europe and also in the western part of czarist Russia large-scale industrialization began during the last quarter of the 19th century. Hungary, for instance, already had a relatively well-developed infrastructure at the beginning of World War II. Of course, the war did a great deal of damage. But it is almost impossible to judge what our companies would have been able to do if they had not been forced to put the most weight on armament. Because of it our countries found themselves in an unfavorable position when compared to the West. Whenever I read the analyses on East Europe by most Western economists, I am always annoyed because they do not consider the fact that the economy here consists to a high degree of armament industries and that a much smaller economic potential is in a competitive arms race with a much larger one.

[Question] The political leadership in Hungary that was proud of the successes of the reform and the increase in the standard of living took a big risk upon itself when, in the summer of 1979, it suddenly raised the prices. And in January there are supposed to be new radical price increases. The leadership is blaming external factors. How long can such a course be followed without risking reactions more serious than grumbling at the tavern table?



Zoltan Zsille: I am not a friend of the idea that the worse it gets, the better it is. I have noticed, however, that now, following a long period of political dullness and indifference, people's eyes are slowly being opened, since their situation is getting worse. Now it is occurring to them that the paternal police humor which has been used to make fun of those who work little but were living quite well anyway did not only apply to lazybones but also to those who work hard. While the slow rise in the living standard was considered a gift by the state, the government committed serious sins of omission and squandered a big part of the power of the working people on things that are making us poorer. Now that the economic failure has become apparent, it is possible that people will see more clearly that they have to rely upon their own strength. They realize that in reality economic progress is not assured and that the leadership does not know what to do in this country in order to counter the "concentration" of influences from the world market. And in the case of openly spreading dissatisfaction, the government knows hardly any other measure than demonstrating power.

Tamas Foldvari: Zoltan speaks here in the name of the people who have been "awakened" recently. I am sure, there are many people who are beginning to think as he does. Government leaders say that outside factors are the cause for the difficult situation and, to some extent, also our own laziness and carelessness. But I do not agree with Zoltan on one point: There are still enough people, perhaps even the majority, who are restricting their dissatisfaction to grumbling in taverns. In addition, there are those among the intelligentsia who are silent because they are privileged. And there are still others who are able to compensate for most of the price increases through their activities in the second economy (private small enterprises, unreported work, etc). They keep climbing along with a steeper and steeper inflationary spiral. Thus, dissatisfaction is not a general feeling.

Zoltan judges public opinion more realistically than officials do. But one must be discriminating when looking at this public opinion. Unfortunately we do not have any institutions that would be able to do precise research on public opinion; we have to depend on personal impressions.

András Hegedus: I have to admit that the price increases last summer were urgently needed; it would have been better if they had been instituted a year earlier, but it is definitely an advantage that they were not enacted a year later. From this viewpoint, we must recognize that Hungarian economic leaders proceeded more courageously than did, for instance, Polish leaders. I agree that the causes for the deterioration of the economic situation must be more freely disclosed. In the press there are frequently statements referring to the lack of work discipline; but in my opinion, the most important problem is the fact that within the economic life bureaucratic structures have developed that defy every control, even by the party. These bureaucratic structures are consuming a large share of our investment. The population, yes, even the government itself, does not know how much waste there is.



Even today, I still feel that the Hungarian economic policy deserves a compliment because it did not introduce restrictions with regard to the production and import of consumer goods when price increases were announced. In my opinion, the fact that the population accepted price increases so calmly can only be attributed to the fact that there is no shortage of goods as is the case in other East European countries. Nobody who feels a responsibility toward our society can have as a goal unrest caused by price increases. We must be sensible and orient ourselves toward the goal that as many people as possible from among those who are able to think and act autonomously--intellectuals, labor organizations and even workers--will urge economic leaders to analyze the causes that have led to the current difficulties. Incidentally, I agree with those economists who say that there should be a conscious effort to plan "zero growth" for an extended period of time.

[Question] Such opinions exist also in the West. Apparently you, Andras, feel that this system, this leadership can be reformed. Do you believe that it will permit a certain autonomy and genuine representation of interests?

Andras Hegedus: There are serious forces within the leadership and the economic bureaucracy who are striving after a rational economic reform. It is a different matter whether political leaders will tolerate the formation and existence of autonomous movements, without which significant social reforms are unthinkable.

8991

CSO: 2300

## HUNGARY

### MANAGING DIRECTOR OF NEW INTERNATIONAL BANK INTERVIEWED

Budapest HETI VILAGGAZDASAG in Hungarian 1 Dec 79 p 30

[Interview by Pal Emod with Dr Lajos Komar, president of the Central European International Bank, Inc.: "The Basic Principle of Our Business Policy Is Internationalism", Says the CIB's President," place and date not given]

[Text] Although it was officially founded on 9 November, the Central European International Bank, Inc. of Budapest, will actually begin operating only on 1 January 1980 (HETI VILAGGAZDASAG, No 24). In addition to the Hungarian National Bank, the bank has six foreign stock holders: The Banca Commerciale Italiana, the Bayerische Vereinsbank, the Long-Term Credit Bank of Japan, the Societe Generale, and the Taiyo Kobe Bank, Ltd. The bank--its abbreviation is CIB, originating from its English name--is directed by a 16-member directorial board, and its president is Dr Lajos Komar. The 46 year-old banking expert graduated from the Karl Marx University of Economic Science in 1955, and it was at this time when he started working at the Hungarian National Bank where he recently worked as the director of the International Department.

[Question] On what considerations is the 16-member directorial board based?

[Answer] All six of the foreign banks, each of which has a share of 11 percent, have delegated two members each, just like the Hungarian National Bank, which has a 34 percent share in the capital stock. These 14 members represent the banks that delegated them. In addition, one member was delegated by the Hungarian National Bank, and one jointly by the foreign stock holders. The member sent by the Hungarian National Bank is the existing president of the bank, and the member jointly sent by the foreigners is the existing vice-president. These two represent the CIB itself in the directorial board.

Incidentally, decisions in the directorial board must be made unanimously, therefore, neither the foreign stock holders nor the Hungarian National Bank can force their will on the others.

[Question] What business policies and concepts has the CIB set?

[Answer] The bank's activity is concentrated on three main areas. These are commercial financing, export-developing investment-credits, and helping the foundation of capitalist companies and Hungarian joint enterprises. The basic principle of our business policies is to offer our partners new services that mean supplementary monetary sources to them above their existing possibilities.

[Question] Of course, our public is mainly interested in what concrete services the bank will offer to the Hungarian enterprises.

[Answer] I will list a few as a sample, adding that, since we are dealing here with exactly defined financial transactions, I must use technical jargon. In export transactions, covered by export collection or letters of credit, the CIB advances the expected inflow of export foreign currency in helping the machine industry. In imports, it satisfies the buyer's real demand for credits. We might talk about re-financing delivery credits, financing the buyer's local investments connected with machine deliveries, giving credit to the supplier for the import contents of complete equipment etc. The bank will finance export-developing investments in a system similar to the Hungarian National Bank's 45 billion-forint export-developing credit margin.

[Question] Will the bank also offer credit in forints and transferable rubles?

[Answer] No, the CIB makes international transactions only in convertible currencies. Within its approved framework of activity, it was relieved from the limitations of the Hungarian foreign currency regulations. However, its activity will be carried on alongside the enforcement of the Hungarian National Bank's monopoly in credit and currency circulation.

[Question] Can the financing of trade between the socialist countries be part of the bank's business policies?

[Answer] Of course, if it is a trade accounted in dollars. And this is no small item in the deliveries between socialist countries. But we must call the attention, on the other hand, not to over-estimate the bank's significance, for we cannot deal with the financing of billion-dollar transactions.

[Question] Now that you referred to the effects of business trade, how should the bank's 20 million-dollar capital stock be assessed?

[Answer] The criterion by which the size of a bank can be assessed is, how many times more foreign assets it can mobilize in its business activity, as compared with its own assets. In the case of consortial banks--and thus in the case of the CIB--the internationally accepted ratio is 1 to 20. This means that the CIB, with its 20 million-dollar capital, could have liquid assets of about 400 million dollars. But since a part of the total profit goes into reserves, which are also own assets, and supposing that this profit

in reserve will reach 10 million dollars in five years (which is, incidentally, a realistic goal), the CIB could grow in five years to be a bank that has 600 million dollars worth of liquid assets. This sum would secure a distinguished position for the CIB among the consortial banks active today.

[Question] This line of thought is justified in the case of profitable activity, but deficit cannot be ruled out, not even in a bank. Is there any such danger?

[Answer] Although no bank can play it safe, the board does not anticipate any deficit. Not only because some of the selected hunting-grounds are considered almost virgin and promise realistic business opportunities but also because the bank is directed by the collective wisdom of the stock-holders. And, although I want to avoid even a mere appearance of boasting, I must note that the stock-holders are internationally known financial institutions whose total assets--without those of the Hungarian National Bank--exceed 250 billion dollars, and whose activity and the organizations encompass the whole world. The creation of the CIB, too, was decided not as an experiment but after a thorough analysis of the business opportunities.

[Question] Although the bank makes its transactions in convertible currencies, its headquarters are in Hungary notwithstanding. How can the foreign stock-holders transfer their profit to their home office?

[Answer] Profits are put at the start into convertible currency and their transfer is permitted by Hungarian legal measures. Hungarian taxes levied on the bank's profits are paid in convertible currency, in forints purchased from the Hungarian National Bank, the same way as the forints covering its operating expenses are bought with convertible currency.

[Question] From time to time international banks, including commercial banks, give reports about the economic conditions of their home country or area. Will the CIB follow this practice?

[Answer] For the time being, we are not planning such activity, but the possibility is not to be ruled out.

9414

CSO: 2500

## PROBLEMS OF 1981-1985 SOCIOECONOMIC PLAN ANALYZED

Warsaw GOSPODARKA PLANOWA in Polish No 11, Nov 79 pp 569-575

[Article by Andrzej Karpinski; "Problems of the Five-Year Plan for the Years 1981-1985 in the Light of the Guidelines for the Eighth PZPR Congress"]

Basic targets for the socioeconomic development of the country during the 1980's, and particularly in the 1981-1985 5-year period, are contained in the guidelines for the Eighth Congress adopted at the 16th Plenary Session of the Central Committee. After thorough discussion these guidelines will be subject to further objectivization, first in the resolutions of the Congress and later in the future 5-year plan.

The program for the development of our economy as contained in the guidelines is based on an analysis of the current economic situation in the country and on the needs of the future, and at the same time gives consideration to the realities of the economic situation and to forecasts of the development of the situation in the world economy. The basis of the developmental concept contained in the guidelines is made up of the results of work in progress for some time on the targets of the next 5-year plan, the sixth one already. In turn the point of departure for this work was the targets for the 1981-1985 5-year period contained in the design worked out several years ago for the long-range plan to 1990. The development of the situation in the world economy and in our country has nevertheless made it necessary to consider a number of new elements in the current targets. In particular this includes three factors:

The first of these concerns changes in the current economic situation in world markets. The latter have an essential effect on the general proportions of economic development in a double sense: an evaluation of the long-range economic prospects of the capitalist markets is reflected in the evaluation of our export chances, and the strong tendency for raw material prices to rise affects the evaluation of chances of supplying



the economy with imported resources, and thusly affects the level of industrial production which can be achieved.

The second factor consists of consultations with other socialist countries on the subject of the development of cooperation in reciprocal supplies in the next 5-year period. These have led to a better grasp of the opportunities existing in this area.

The third factor is a current evaluation of the economic results of the present 5-year period. As a result of the effort put forth in the 1970's, a firm base has been established for the further development of the country in the 1980's. However, at the same time the initial base in a number of sectors will be lower than previously assumed. Simultaneously deep disproportions will occur in connection with the insufficient development in the light of needs and with the unsatisfactory effectiveness of the power industry and transportation. For these reasons the economic situation of the country at the point of departure into the coming 5-year period is not simple. Therefore the essential content of development in the next 5-year period will be found in overcoming and eliminating the disproportions which occur, along with the adoption of new developmental tasks.

It seems that, of the general requirements in the development of the country in the future 5-year period, attention must be directed toward the following elements essentially affecting the targets contained in the guidelines.

The first of these is a current evaluation of the long-range prospects of the capitalist market. As we know, reliable and authoritative evaluations of experts in the western countries and in international organizations forecast a weakening in the growth tendencies of the national income in the main capitalist countries in the next 5-year period. So far it is anticipated that this rate will establish itself within the limits of 2-3 percent annually. The latest decisions of the OPEC countries in the successive rise in oil prices are undoubtedly producing another and even stronger stimulus for the tendency to weaken the growth rate. Recently western forecasting centers<sup>1</sup> have anticipated a drop in the growth rate of the national income of the United States for 1980 from 1.5 to 0.2 percent, of the FRG from 3.9 to 2.4 percent, of Japan from 5.7 to 3.5 percent, of Great Britain from 1.7 to 1.1 percent and of France from 2.7 to 1.3 percent.

In the light of these indices we must count on continued maintenance and even intensification of the protectionist tendencies in the markets of these countries and with a sharpening of competition. This will mean difficult conditions for the development of our exports to these markets.

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<sup>1</sup> NEWSWEEK, 1 Oct 1979, p 45.

In this situation a new factor in world markets is a very energetic entry of the vanguard of the third-world countries into these markets, countries basing their development on a strong export orientation.

A second element in the overall-economic requirements for the further development of the economy is the raw material situation. For a number of reasons we find ourselves today in a qualitatively new situation in the area of supplying our country with scarce basic raw materials and other materials. In the light of negotiations and adjustments already made we are familiar today with the possibilities of receiving raw materials from socialist countries. This means that there are many materials which we do not have and which are unavailable in the socialist market, and which we will have to import from nonsocialist countries, necessarily expecting a price increase in price. The prices for crude oil are and will continue to be a key problem. As a result of the recent OPEC decisions the price of crude oil rose from \$102 to \$174 per ton between April and October 1979. According to some forecasts we must expect a crude oil price increase on the average of 12 percent annually in the next 5-year period. This has created a qualitatively new situation in the fuel market.

We must also count on tendencies appearing in the development of our own national raw material base. Coal can represent a symptomatic example of this. The cost of investments associated with the expansion and construction of mines will rise sharply as deeper beds are put into operation. It is initially judged that the capital intensiveness of investments in coal mining will increase by 60-80 percent during the next 5-year period.

Thus, in short, in the present complicated raw material situation the economic development and its growth rate will be to a constantly increasing degree a function of the possibility of supplying the country with scarce basic raw materials and fuel and of progress in reducing their consumption.

A third element in the overall-economic requirements worthy of attention is the food supply problem. At the present time it depends to a high degree on imports of grain and fodder from the world market. During the present decade we have spent the tremendous amount of \$8 billion for imports of grain and fodder, and this represents a heavy burden on our balance of payments. The forecasts for the further development of the situation in world grain and fodder markets are generally unfavorable. A simultaneous drop in the supply of grain and fodder and an increase in the demand on the part of countries importing grain and fodder are anticipated in the 1980's. At the same time forecasts point to the possibility of price increases for grain on the scale of 5-7 percent annually. Thus expectations regarding both the magnitude of demand for grain with concomitant difficulties in buying it and the price increase indicate the need for gradually limiting grain imports. In this situation an increase in our own production of grain and fodder must be considered one of the main problems of the 5-year period.

The next serious problem is the water supply. Rather poorly provided by nature with potential water resources, our country is currently entering a period of increasing strain in the water supply balance. This is one of the tangible threats which require counteraction by way of making suitable investments in time, along with other measures. This leads to the special current need of beginning to implement a program of comprehensive development of the Vistula in the coming years. At any rate it is necessary to consider a water balance under strain, which will affect the development of production in water-intensive industries. At the same time we must pay attention to the increasing demands for protection of the environment and the need of allocating larger funds for this purpose in step with the development of economic activity.

The investment situation is of essential importance from the viewpoint of other domestic requirements. An evaluation of the current state of investment processes shows that the investment front is excessively developed. We are committed to fulfill a number of long-term programs which require considerable funds, while we must still wait for their results. In this state of affairs it is necessary to consider the fact that we are entering the next 5-year period with a high investment commitment which will limit possibilities of adopting new investment undertakings for several years.

Finally in the general requirements we must mention the current situation in the labor resource increment. An estimation of the labor resource increment in the next 5-year period is characterized by the greatest degree of uncertainty in comparison to the multiyear plans carried out in the past. This is especially affected by the recently adopted and unusually important and socially necessary decision on the introduction of pensions for individual farmers. This decision takes effect on 1 July 1980 and, at the present time, it is difficult to anticipate how it will affect the vocational activity of rural people of pension age who are still taking part in production processes. Currently approximately 1.4 million people, who have passed the threshold of the pension age, are working in our agricultural system. Depending on the rate at which this group of people retires, it is estimated that the labor resource increment can amount to 400,000-500,000 people at most during the 5-year period, but in case the retirement processes proceed rapidly, it may even be limited to only 100,000 people in the entire 5-year period, and we cannot even rule out the possibility that in an extreme case we may have to deal with a zero labor resource increment in the next 5-year period. Therefore the scale has an extensive range. It indicates the need of maintaining a great deal of prudence in programming the labor increase outside of agriculture.

At the same time attention must be given to factors exerting a decidedly positive effect on the possibilities of development of our economy in the next 5-year period.

This should include the high state of saturation of the economy with personnel of higher education. It should be recalled that the long-range plan assumed that in 1990 this saturation would reach the amount of 100 workers of higher education per 1,000 workers in the socialized economy. As a result of an increase in the number admitted to higher schools in the 1970's and of the widely implemented process of additional education for gainfully employed people, this level will be reached 5 years earlier. As early as 1985 the saturation of workers of higher education will reach 97 per 1,000 workers, that is, almost at the level previously anticipated for 1990. The crux of the matter will be how best to use this personnel capital.

We have well-developed research and development facilities which can and should implement their activity in favor of the development of the national economy. We are at the head of Europe with respect to the number employed in our research and development facilities. This is a great reserve for the further development of our country, as pointed out by the 12th Plenary Session when it simultaneously set directions for raising the effectiveness of activity in these facilities and better concentration on problems of special importance for the further development of the economy.

We have relatively new production assets in our industry. It is worth remembering that in the middle of the 1970's we occupied one of the leading places in Europe with respect to the number of machine tools installed during the year.

We have a number of large, considerably advanced, investment enterprises which will be finished in the coming years. During the 2 years after 1980 we must count on new production capacity on the order of 500-600 billion zlotys entering the economy, including such installations as the fuel and energy complex in Belchatowa and the first installations in the Lublin Coal Basin.

Finally there is advanced work on multiyear directional programs of cooperation within the framework of CEMA, creating premises for the transformation of a number of sectors and subbranches of the economy, closely integrated with the very receptive Soviet market. This makes it possible to increase the scale of production of many products and to gain corresponding benefits.

In short, however, while observing all of the positive elements of the current requirements, we must also consider those fields and sectors in which increasing stresses can appear and the scale of difficulty can become greater.

Three general conclusions are drawn from an analysis of this situation in the guidelines for the Congress.



The first of these is the need, during the 5-year period immediately ahead, to adopt more prudent targets for the development and application of flexible measures which will make it possible to adapt the economy and our society to different conditions and situations which are not always completely favorable for us. This is a tendency which is also observed universally outside of our country. In the programs and plans currently being prepared in all countries special emphasis is being placed on the flexibility of measures offering protection against the varied development of situations in the world economy.

A second conclusion stemming from the current situation in the country and the tendencies of the foreign conditions taking shape is the necessity of transferring the emphasis from the quantitative aspects of development to the aspects of quality and efficiency. This is a condition for improvement in the balance in the domestic market, and thus the condition for better buying conditions. It is necessary from the viewpoint of the balance of payments and for the purpose of augmenting the possibilities of imports and mitigating the existing shortages in material and technological supplies and in co-produced supplies. It is also important in the investment process in order to obtain a more timely realization of investments which have already been begun and an improvement in the unsatisfactory quality of construction, especially residential housing.

As the balance in the economy becomes stronger, it will be possible to proceed gradually toward a faster rate of development of the economy.

A third conclusion is the need to concentrate funds on those problems recognized as most important in the guidelines for the Congress, and therefore particularly on matters relating to the food supply of the country and to residential housing. This fits in with all of our previous experience which illustrates that the concentration of goals and funds is a condition of efficiency in acting and of propitious realization of social goals.

In this light it does not seem valid to increase the number of new social goals requiring additional material resources before economical management of corresponding funds through better, more effective work on the part of our national economy.

It is necessary to note the fact that in the current world many countries are encountering the problem of maintaining the standard of living already attained, which in itself is an achievement under the conditions of the world situation, which is becoming more complex.

The goals and tasks defined for the Sixth and Seventh congresses, developed and supplemented in the guidelines for the Eighth Congress, constitute the basis for formulating the social goals of the coming 5-year period in the guidelines for the Congress.



The basic social goals of the future 5-year period, likewise defining the directions of formation of the socialist model of life in the current stage of the building of socialism in our country, contained in the guidelines for the Eighth PZPR Congress, can be understood on three planes.

First of all one of the major social goals of the next 5-year period will be, in conformity with the guidelines, improvement in the conditions of developing and strengthening the family as the basis for the development of the nation and the formation of socially committed attitudes. In this area the guidelines define critical tasks. They are a further rise in incomes, salaries and consumption, improvement in the food supply, turning 1.7 million dwellings over to use including 150,000 resulting from the modernization of old residential resources, the development of education showing a preference for nursery care, further development of the health service and the construction of 25,000-30,000 hospital beds, further progress in protecting the social family and the development of time-saving services. These tasks come from a current evaluation of the possibilities of our national economy and are adapted to these possibilities. In some cases this would require a revision of programs established earlier.

Secondly, in the new social situation which created a qualitative increase in the level of the people's income in the 1970's, it is necessary to better the way in which the principles of social justice are achieved. This goal is expressed in the targets relating to raising the lowest wages, the principles of management of the residential matter, a further rise in the standard of living in the countryside, and also in increasing the attention paid to the problems of the distribution of income in accord with socialist principles of division and with our system of values.

Third, the development of the sphere of social satisfaction, obtained both by individuals and by all of society outside of the sphere of material consumption, is indispensable, and especially as a result of the improvement in conditions of work and recreation, the level of safety and hygiene at work, and as a result of growing participation in social life and the development of independence in factories and in development and local establishments.

From the viewpoint of achieving the social goals mentioned above, the essence of the problem comes down to estimating the possible progress to be made in achieving these goals in the next 5-year period. With respect to the entire sphere of material goods, in the last analysis this depends on the possibilities of raising the national income, primarily the income generated in industry and agriculture.

Studies made up to now on the development of the economy in the next 5-year period show that the targets of this development should be elaborated in a framework of variants, and this on a scale relatively more extensive than that used in the past with regard to the tasks and

proportions of the national economy. This has been reflected in the proposals contained in the guidelines referring to the rate of growth of industrial and agricultural production and, as a consequence, in the national income.

The entire analysis demonstrates that the major criterion in differentiating the variants of the plan in the part concerning material production and the creation of the national income should be progress in reducing the materials intensiveness of our economy.

During work on the targets for the next 5-year period, the variants in industrial production (affecting the total dimension of the national income in a decided way) were analyzed on a scale from 20 to 30 percent of the increase during the 5 years.

Two variants characterized by an increase in industrial production during the 5-year period of 20 percent, in the first variant, and 24 percent, in the second, were recognized as most realistic. In the first case this means an average annual increase amounting to 3.8 percent, while in the second case it means an increase of 4.5 percent. The first variant requires a reduction in the consumption of raw materials, energy and other materials per unit of production value by 6 percent during the 5 years. The second variant requires a reduction of this consumption on the scale of 8 percent in the 5-year period.

In the light of experience so far, the target of reducing materials intensiveness by either 6 or 8 percent during the 5-year period will be difficult to realize and will require a very serious increase in the efforts of industry and an acceleration of structural changes, because a trend toward worsening average materials intensiveness has been appearing in our industry during this 5-year period.

With respect to agriculture the guidelines assume, with average atmospheric conditions, an increase in final net production of 12-13 percent during the 5 years. This is associated, among other things, with an assumed reduction in the importation of grain and fodder, which currently has a tangible effect upon the level of agricultural production. It is impossible to maintain such an import level. In assuming a reduction in the importation of grain and fodder, even under the conditions of simultaneously adopting rather ambitious tasks for the development of our own fodder base, we must define the tasks of increasing final production in agriculture with due prudence.

The guidelines contain a well-developed concept of the formation of directions for the development of agriculture and a reorganization of its structure with special consideration of a reduction in losses in plant production, preference for those directions of production development which are based on domestic agricultural resources and intensification of production aid from industry and other branches for the benefit of agriculture.

Taking the targets for the increase in industrial and agricultural production mentioned above and taking properly defined tasks for bettering effectiveness as the point of departure, the guidelines defined the rise in the national income generated during the 5-year period by approximately 14 percent in the above variant. This means that the mean rate of increase in the national income would amount to approximately 2.7 percent annually in the first variant and 3.4 percent in the second.

Foreign trade will present an important problem in the development of the economy in the coming 5-year period. During the next 5-year period turn-overs with capitalist countries will be typified by a shift from an excess of imports over exports characteristic of the current 5-year period to an excess of exports over imports in the future 5-year period, which is indispensable if we are to pay credits previously contracted. For this reason acceleration of export growth, constituting one of the key problems of the entire plan, assumes key significance. Our import needs, adjusted to the assumed increase in agricultural and industrial production, our payment obligations, and also the necessity of granting credit for the development of the raw material base in countries with which we have multiyear connections, show that export growth in the 5-year period must exceed the growth of the national income and industrial production. As a result this should mean an increase in the share of export production up to 17 percent of total industrial production. This should be accompanied by a slower rate of import growth, both from socialist countries and from capitalist countries. This will require essential changes to be made in the structure of our imports, especially those from capitalist countries. It will especially be necessary to reduce the share of machinery and equipment for investment needs, and of grain and fodder, in favor of a suitable increase in the share of raw materials, spare parts and co-produced elements. At the same time we must aim at replacing co-produced production from imports by equal production produced domestically at an economically justified time.

The main element in imports from capitalist countries is the importation of crude oil. This is an item which will shift to first place in the coming 5-year period, with respect to both tonnage and value. Assuming, in keeping with the guidelines, that we shall refine 21-22 million tons of crude oil in 1985, we shall have to double our imports of crude oil from capitalist countries. At the current price level this would mean an increase in expenditures from approximately 1.9 billion foreign-exchange zlotys to nearly 4 billion foreign-exchange zlotys. This amount will equal 15-20 percent of all possible imports from these countries, calculated in stable prices, and even more when counted in current prices. If the current forecasts for the price of oil are confirmed, the expenditure to import it would have to come to 5.5-6 billion foreign-exchange zlotys.

In considering the effect of foreign trade on the total magnitude of the national income for distribution, it is currently thought that the increase in the total consumption fund in the 5-year period will possibly be 13-15 percent. The attainment of such a rate of consumption increase is a condition for meeting the social goals set. Therefore this consumption magnitude must be increased by the total amount of investment outlays defined as the resultant magnitude in comparison to the national income for distribution and the consumption growth targets. This consequently means that in the coming 5-year period there will be a further growth in the share of individual consumption in the national income from 64 percent to 67 percent, and the burden on this income by investment outlays, the share of which should not exceed 20 percent, will be further diminished. This testifies that the coming 5-year period will continue the general principle of priority of social goals over economic goals adopted at the Sixth PZPR Congress.

As already mentioned, forecasts of the working force resources for the next 5-year period show that the increment in these resources will be considerably less than in the past. For this reason the growth in employment in the socialized economy during the 5 years may not exceed 250,000 persons. At the same time the necessary increment in employment in the service sphere alone is estimated at 400,000-450,000 people. This means that it will be necessary to reduce employment, especially in industry and construction, in favor of other sectors of the national economy. In this regard key significance will be given to progress in mechanization and automation of work and to the activation of still existing reserves to increase labor productivity. A special role will be given to mechanization of auxiliary work because, according to the current evaluation, basic work is 2.5 times more mechanized than industry. Great opportunities for increasing social labor productivity are also associated with mechanization of domestic and technological transportation and of loading and unloading work.

In connection with the fact that a relatively small increase in employment is anticipated in the coming 5-year period, the rate of growth in real wages could be close to the rate of consumption increase.

The guidelines assume that the increase in the real income of the people will amount to 10-12 percent per capita in the 5 years of 1981-1985, with a somewhat slower increase in average real wages per employee, since it will only be 9-11 percent, and with a faster increase in social monetary services.

It should be brought to mind that the social monetary services in this 5-year period will increase from 27 billion zlotys in 1975 to approximately 195 billion zlotys in 1980, or almost double, which is a result of the active social policy achieved throughout the current decade. A number of decisions made in recent years on a gradual rise in the amount of social services will lead to a further growth in payments after 1980. The same fulfillment of decisions concerning pensions and annuities for farmers



and increases in minimum pensions and annuities in the next 5-year period will entail funds causing a rise in the annual payments of social monetary services to the gigantic sum of 250-260 billion zlotys, that is, by 27-32 percent. With respect to group consumption, the expected increase in the number of children, especially those of school age, will have a substantial effect on a consumption increase in the budgetary sphere. The number of children of school age will increase by 600,000, which will require a corresponding increase in expenditures for education.

It is estimated, in considering the targets of the distribution of the national income with a preference for a consumption increase, that the total sum of investment outlays in the national economy in the 5 years of 1981-1985 could reach a level close to that of the current 5-year period.

The possible level of investment outlays indicates the need for making thorough changes in the investment structure. This is because an increase compared to this 5-year period is anticipated in outlays for energy (including the fuel base), for the food supply economy and for transportation without the amount of these outlays changing from the current 5-year period. This will be necessary in order to overcome the disproportions which our economy is keenly feeling at present and to gain improvement in the economic balance.

Fulfillment of the targets contained in the guidelines will not only bring further development of our economy, but at the same time will strengthen the economic balance of the country and mitigate the stresses which are appearing at present.

The most perceptible effects of this can be expected in the following fields.

They will be felt first in the field of the power industry and the energy situation. With an increase in industrial production of 20-24 percent, the guidelines assume an increase in the production of electrical energy of 24-28 percent, without counting energy delivered from the "Khmel'nitskiy" atomic power plant being built jointly by socialist countries inside the USSR, and thus the increase in energy production will surpass the increase in industrial production by 4 points. This relatively high, so-called "energy guarantee" for the development of the economy assures a gradual improvement in the energy situation in the next 5-year period.

Secondly, there will be an improvement in the railroad transportation situation as a result of completing such investments as the foundry-sulfuric line, the new main lines from Silesia, and also as a result of progress in the electrification of the railroads and acceleration of the development of inland waterway shipping, especially on the upper Vistula.



Despite this progress the transportation situation will still not be completely under control until 1985.

Thirdly, there will be better harmony between the process of residential construction and land development, with the acceleration of development service construction. As a result new developments should have a more comprehensive structure and in this way the improvement in living conditions in new developments will be perceptible.

Fourthly, there will be improvements in some fields of the food supply of the country (vegetables, fruits, dairy products) based on our own plant production accompanying the fulfilment of investments aimed at diminishing harvest losses, the development of storage facilities and up-grading production, while the process of mechanizing basic field work will make considerable progress.

Fifthly, there will be gradual improvement in supplying the market, eliminating a number of shortages in some sectors, and better adjustment of the production structure to the demand structure.

Sixthly, we may expect improvement in establishing an equilibrium in the balance of payments with all of its positive effects for the economy and the people, under the condition that the tasks presented in the export area are achieved.

Fulfilment of the economic tasks contained in the guidelines will require proper orientation of all of our current economic policy.

Improvement in socioeconomic efficiency, as the main source of economic growth in the future 5-year period and in the long-range plan, takes first place. After all, it is not possible to continue economic growth based on high outlays, on extensive commitment of investment funds and on an increase in employment and imports. In the future 5-year period it will be necessary to direct special attention to achieving real improvement in efficiency in individual economic organizations and countrywide. An increase in efficiency on the macroeconomic scale depends to a large degree on structural changes in the economy. For this reason acceleration of structural changes in favor of the most effective branches must be treated as the second direction of the economic policy of the future 5-year period. At the present time we are highly committed to investments already begun, and the possibility of investment maneuvers in favor of the most effective branches will only increase gradually. However, it is assumed that funds can gradually be shifted on a greater and greater scale to the development of production of those branches, subbranches and products which make it possible to achieve higher efficiency and an accelerated increase in the national income.

The third direction of the future economic policy should be to commence restructuring the energy economy and directing the national economy toward

less energy-intensive production, especially in industry. It is anticipated that considerably broader research and development facilities than in the past will be used to achieve this purpose of reducing energy-intensiveness. A program of saving energy and fuel on the scale of 7.5 million tons of standard fuel annually has been developed. Analyses conducted reveal that there can be at least a double increase in these savings if the growth rate of the most fuel-intensive branches can be stabilized and their technology reconstructed. Anticipation here is that for this purpose a program to convert scarce raw materials into less scarce ones will be developed, along with a program to save fuel in all of the technologies used.

A fourth direction of the economic policy of the future 5-year period should be to maximize production based on the national raw material base. We should take a particularly close look at the possibilities and assumptions for developing those branches which require relatively less input of imported raw materials, particularly from sources which are difficult for us to deal with for foreign-exchange reasons. At the same time the matter of making considerably more universal and thorough use of secondary raw materials will achieve a high rank. This particularly concerns dust, ash from electric power plants, rubber scrap, recycling tires, plastic waste and so forth. It is anticipated that the program of using these raw materials will be an integral part of the future 5-year plan at all levels, beginning with enterprises.

The fifth direction of the economic policy is further intensification of economic integration in conformity with the multiyear orientational programs of economic cooperation within the CEMA framework. Finland has contracted a number of agreements guaranteeing the development of special contacts, especially some which are of key significance with the Soviet Union, which is the greatest supplier of many raw materials for us.

The sixth direction is associated with the need to intensify export efforts, where a more flexible approach to the organizational structure of industry is anticipated, and where suitable changes will be made in the management and motivation systems. This is because it involves a transition in the future 5-year period to a heavy export orientation on a broad front, and also entails acceleration in the formation of an export sector in our economy.

From this point of view modernization of branches with a well-developed position in world markets and the development of production of those products and subbranches which are most resistant to protectionist movements in the world market will be of special importance.

The seventh direction of the economic policy, to which substantial importance is attributed in the guidelines, is harmony between the internal structures of subbranches in industry and in the national economy, because

after the period of stormy development in the 1970's we find disproportions within the structure of individual phases of the technological process. This also concerns the power industry and transportation. In this connection special importance will be given in the very near future to investment in those links of the technological process which form bottlenecks and which can permit a significant increment in production to be obtained at the cost of relatively small outlays.

The eighth direction, associated both with the need for better satisfaction of market needs and with the targets of efficiency, is the establishment of special preference for the development of small forms of production and services. In agreement with the resolution of the 14th Plenary Session of the PZPR Central Committee it is anticipated that small industry and small forms of service will be developed more intensively than in the past, so that a considerably faster increase in production can be achieved in this field during these 5 years than in the entire industrial production, with more rapid increase in services from the increase in goods supplied to the market.

The ninth direction of activity in the future 5-year period will be an increase in the share of investments for modernization as the most efficient and attractive forms of investment. At the present time we are very backward in this field. The share of investments for modernization in industry do not currently exceed 30 percent of all investment outlays while, for example, in the GDR the share of investments for modernization for 1985 is assumed to be 70-80 percent. In practice this means complete restriction on building new factories, except for new branches of production. It appears that in Poland the aim in the future 5-year period should be to achieve at least a 50 percent share of investments for modernization.

Finally, the tenth direction of activity is improvement in the system of management and planning, motivational systems and the organizational structure of industry, based on a critical analysis of experience garnered in the 1970's. A great deal of room in the guidelines is devoted to this problem, but a wider discussion of it exceeds the framework of this article.

It is a characteristic fact that an enormous role may and should be played in all ten directions of our economic strategy by science and the research and development facilities. Their contribution may be a leading element of success in each of these directions.

In accord with the directions presented for our economic strategy and policy, changes will be necessary in the method of developing the future 5-year plan, taking into consideration all requirements of the current situation.

The first conclusion is the need for a considerably more differentiated approach to plan construction. This is a tendency which is not only appearing in our countries, but also in programming in capitalist countries. In the current situation the construction of programs on a macroscale without the foundation of thorough structural studies involving structural changes does not produce good results. In this connection we shall want to involve associations and selected industrial plants on a wider scale in work on the 5-year plan. For example, this should concern the problems of raw materials, the food supply, residential construction, the market complex, the program of developing the Vistula, the program of integration within the framework of CEMA and so on.

The second direction of work on the 5-year plan is problem programming, namely a comprehensive program of selected problems of key importance and examining them independently of organizational and ministerial divisions.

The third conclusion is a basic increase in the role of problems involving efficiency at all levels of work on the 5-year plan. We shall have to make considerably broader use of known and new concepts and categories expressing progress in management efficiency for the purpose of posing concrete tasks in this area for every unit, beginning with enterprises.

Finally, in work on the 5-year plan we should attribute considerably greater importance to local coordination of the developmental aims of sub-branches, with regard to their increasingly stronger ties with the problem of protecting the environment and water economy.

In working on the developmental targets of our economy for the future 5-year period, we have information available on the subject of the formation of these targets in other socialist countries. An analysis of data and numbers published by other countries demonstrates that our aims do not deviate from the targets adopted by other socialist countries, with the exception of Romania.

This is because both we and other socialist countries are similarly placing special emphasis on designing developmental targets in the future 5-year period in a way which takes into maximum consideration the realities of the current situation, especially the raw material situation. In the current situation the same rate of growth in production and national income is not a satisfactory measure of progress, unless it is accompanied by suitable qualitative and structural changes. Therefore the still current idea concerning the need of dynamic development should not be understood in quantitative categories, but in categories of dynamic progress in quality and management efficiency.

To sum up, the main purpose of development in the coming 5-year period will be a further increase in the living standards of the nation and in the economic strength of the country, in spite of the entangled and worsening economic situation in the world.

It is only possible to fulfill these tasks under the condition of making substantial progress in the areas of:

- First, production quality,
- Second, modernity, and
- Third, efficiency with special attention to saving raw materials and other materials.

For this reason the future 5-year period must be 5 years of quality, modernity and efficiency.

This will require profound changes in social awareness and in the attitudes of the management personnel, breaking down definite psychological blocks, a departure from simplified methods of evaluating results and personnel in the light of total growth indicators and the execution of short-term and sector plans.

In the course of the further development of our economy during the 1980's we shall aim at using all possibilities to accelerate the rate of development with respect to the targets adopted at present. New mechanisms, establishing conditions for obtaining additional possibilities of investing and importing in cases of economical management of pertinent funds, will be introduced for this purpose. However, this must not take place at the cost of progress in production quality, non-achievement of the efficiency tasks and without progress in saving energy, fuel and materials.

In conclusion it is worth recalling that the numeric data and targets presented above are of an initial nature to a considerable extent. An important element in their verification will be pre-Congress discussions and the negotiations and resolutions of the Eighth PZPR Congress.

However, it may be stated that the targets adopted so far, reflected in the guidelines for the Eighth Congress, already constitute a clearly outlined program for the further comprehensive development of the nation and an increase in the standard of living of society in the next 5-year period, with a transfer of the main emphasis to the aspects of quality and efficiency in this development.

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## MINISTER INTERVIEWED ON HEALTH, SOCIAL WELFARE SITUATION

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[Interview with Prof Dr habilitatus Marian Sliwinski, minister of health and social welfare, by Barbara W. Olszewska: "On health Without Emotion"]

[Text] [Question] From the signals we are receiving from our readers and from patients as well as physicians, it seems that there has been a certain deterioration in the conditions of using the health service lately, in spite of positive general changes. In your opinion, Mr Minister, what is the reason for this?

[Answer] The statistical Pole visits the doctor's office nearly eight times during the course of a year. The number of medical consultations given in outpatient health care establishments increased by 37 percent in the years 1971-1978, reaching 278 million consultations annually; the number of people treated each year in hospitals rose by 28 percent, and the number of those treated in health resorts, by more than 42 percent.

Thus, the scale of fulfillment of the health needs of the population is tremendous, and--what is especially satisfying to us--it is the result of the active relation of the health service to society and of the development of preventive medicine in an ever broader area. I have in mind studies of the "balance of health" type conducted among children and youth up to 18 years of age (next year we will begin similar studies concerning the health of 40-year-olds), the prevention of dental caries in this population, the initiation of health care for pregnant women and infants, preventive studies in work establishments, active consultations, etc. We are trying to surround people at risk of getting ill with special care and to develop forms of active consultation with these measures, consisting of the planned treatment of individuals with diseases that are significant from the social point of view. At the same time, we will be broadening the tasks of hospitals by forming the already numerous resuscitation teams, outpatient dialysis stations, new cardiology departments, and highly specialized departments in new voivodship hospitals.

I am talking about all of this not without reason, for the scope of our activity has quite an impact on the conditions of utilization of health

service benefits. These conditions are reflected primarily in the daily evaluation of the work of the health service by its patients. Although the index number of hospital beds rose in the years 1971-1978 from 62.9 to 66.8 per 10,000 people, there is still an insufficient number of them. This fact, taken together with the unequal distribution of hospital beds on a nationwide scale and with the principle adopted by the Ministry of Health and Social Welfare, that a patient really requiring hospital treatment cannot be refused admission to a hospital, causes overcrowding of some hospitals and justified complaints from patients. To be sure, the number of clinics in the cities increased by 6.8 percent in the past eight year period, but in many other residential settlements, especially the newly constructed ones, the construction of health service installations clearly is not keeping pace with the rapid growth of the population. This causes overloading of the existing clinics and deterioration of the conditions of using them for this group of patients.

Despite many efforts and undertakings, we still have not eliminated in any perceptible way the lack of physicians from district positions participating in general consultations in the cities. We also know that cases of improper physician attitudes towards patients, and even infringements of the principles of professional ethics, unfortunately still take place now and then. These cases are certainly rare, but they are destroying the positive opinion prevailing in the environment concerning the overwhelming majority of health service employees and posts.

With the hundreds of millions of benefits granted, eliminating all the negative phenomena is a difficult task. And again and again their accumulation in some areas creates among the people the impression of the general deterioration of the conditions of using health care services, which is not the case in my opinion.

[Question] Patient services at the clinic window really has been improved. The "Evening Express" makes an appointment for a patient with a physician by telephone, something that has already been implemented on an experimental basis in some clinics. It is regarded as a great success, although it is on the order of the most elementary facilitating moves... Do you have some other thoughts up your sleeve which would make life easier for the physician and the patient?

[Answer] For years now this has been a subject of interest for ministerial authorities. Principles streamlining the accessibility and cultivation of benefits in health care establishments have been in force since 1973. They impose on the leadership of departments of health and social welfare as well as health care units the obligations to establish the most appropriate types and forms of adjustments in the community's utilization of public health service establishment benefits and to constantly oversee the implementation of this direction.

Among other things, the guidelines recommend the organization of central registers linked directly with a specified family service bureau or with

a group of these bureaus, a measure facilitating and shortening the time needed to register. Giving the registration units current and exhaustive information on the families and on the method, place, and time of seeking of benefits, accepting applications of every type for consultations and office visits, that is, applications made in person, by telephone, by individuals appearing for a patient, etc., introducing a numerical system for applications or registrations noting the approximate hour that a doctor will see a patient--these are further streamlining measures. Other measures include the acceptance of initial registrations for subsequent days' appointments mainly to see medical specialists who see patients on specified days of the week, and by family service bureaus caring for the chronically ill, the introduction on a broad scale of planned, active consulting (on the initiative of physicians and nurses) with the omission of the requirement that the patient covered by this form of care register in person, the use of a system of work shifts for physicians and nurses in organizational health care units, and, finally, the expansion of the hours of operation of family service bureaus to include late afternoon and evening hours.

We would like it if everything that has been worked out and recommended by us thus far were put into daily practice everywhere. We are aware that, very often, a patient's first negative feelings from his contact with clinic registration cannot be counterbalanced by further positive feelings resulting from the benefits received, frequently even from very high level benefits. As I see it, this is one of the most neuralgic points of our activity, and therefore we are devoting a lot of attention to it, especially in the large cities, where we have the greatest deficiencies in this field.

These matters demand constant supervision and stimulation also from the social organs, including primarily tenants' selfgovernment. For the improvement of the existing state does not always depend exclusively on the health service. The health service has peculiar "peak hours," for example. There is a saying that Poles get sick only before noon. Throughout Poland tens of thousands of people visit family service bureaus and health centers in the morning hours, whereas it happens that physicians are expecting patients later.

[Question] The introduction of free health benefits in the countryside was a huge success. Did suitable organizational moves follow this step, however? People say that when they had to pay the physician, it was easier for the farmer to reach him.

[Answer] I do not think that one can speak of a deterioration of the quality or availability of health service benefits for rural inhabitants. But it is a fact that in recent years there has been a marked increase in the health cultivation of rural inhabitants and that many health needs which previously could not be met on economic grounds have been revealed and are being satisfied.

This means that ever greater demands on medical personnel working in the countryside are being made both by society and by the Ministry of Health and Social Welfare. The more than 65 percent increase in the number of consultations given in the past seven years may be a measure of the growth of the health needs of the rural population. To meet the needs of rural inhabitants, we have created the position of the social worker in gmina health centers, and there are 1,600 social workers practicing in the countryside today.

Receiving centers for material for analytical studies, or small laboratories conducting basic studies, and also pharmacies have been organized in many health centers. This saves time for patients, who do not have to go into the city.

To insure that it is possible for physicians employed in the rural health service to have rapid access to first aid and hospitals, a network of radiocommunication equipment is being developed. The health centers have priority in this field. We are also trying to assure rural physicians of means of transport. Approximately 600 centers have official automobiles, rural physicians have priority when it comes to the distribution of the small number of passenger cars which our Ministry receives, and flat rates are given for the use of private automobiles to get to work.

[Question] Despite this, physicians are resisting accepting work in the countryside or small centers, mainly because--so we hear--an ambitious physician in the country has no possibility of receiving additional training. This concerns particularly such specialties as laryngology, ophthalmology, and neurology. Isn't your Ministry thinking about reforming the previous system of physician education?

[Answer] We have never treated matters of education as "closed" issues. However, in perfecting the course of student education, we have to remember both the fact that the majority of medical academy graduates will practice their profession in basic health care and the fact that the store of information carried out of the educational institution has to represent a good basis for the constant supplementing of knowledge during the course of the many years of professional work after the diploma has been received.

We have a good system of physician postgraduate education in Poland that has been formed over the years. Aside from hospital departments and health care units, other establishments concerned with physician education are voivodship hospitals, medical academies, scientific research institutes, and voivodship centers which train medical cadres. The Medical Center of Postgraduate Education coordinates physician education on a nationwide scale. For all practical purposes, the physician working in the countryside or in a small town has the opportunity to become specialized in all the fields represented in the hospitals located in the voivodship, including ophthalmology, laryngology, and neurology.

I must add, however, that we are interested in having physicians acquire primarily those specialties which have fundamental significance from the standpoint of social needs and the health service's own needs and, thus, such directions of specialization as: internal medicine and general medicine, pediatrics, obstetrics and gynecology, industrial medicine, and maintenance child and adult stomatology. The voivodship physicians, who control specialization policy for the entire voivodship, are also acting in this direction.

[Question] We hear constant complaints about the lack of mid-level and low-level health service personnel. What is being done to alleviate this deficit?

[Answer] In accordance with the program we have assumed, the number of nurses and midwives should increase to 220,000 by 1990. For the purpose of comparison: in 1973, 130,894 nurses and midwives were registered, and last year, the total was 169,376. In the past several years the education of this group of personnel has intensified significantly, a factor which allows us to feel certain that the growth of this cadre assumed in the program will be achieved.

The idea behind the adopted assumptions is that each voivodship should be self-sufficient in satisfying the demand for nurses and midwives. In connection with this idea, the voivodships are pursuing an appropriate policy, concerning both school recruitment and employment of graduates. The Ministry is interested in having all medical school graduates undertake work in the health service and in having the least number possible of employed individuals give up their profession. The loss from people giving up their profession combined with natural attrition is not too great, despite what is often thought; for example, the loss among nurses in 1978 totaled only 2.4 percent of the number of individuals registered. We are interested in decreasing these losses to a minimum; among other things, the twofold wage increases put in force in the years 1971-78 were helpful in achieving this goal. The established system of wages calls for the possibility of the further advancement of workers to higher basic salary groups and to higher special bonus rates, on the scale of financial assets which the health service posts have at their disposal.

Three years ago we introduced the new profession of hospital orderly in the health service. A person with a basic education and with at least six months of training, who has completed the hospital orderly preparatory course and who has passed the examination, can perform this function. Health service establishments conduct these courses. The introduction of the profession of hospital orderly has raised the status of the former hospital attendant among the medical professions, makes the improvement of services possible, and allows for a certain increase in salary at the same time. Jointly with the Chief Command of the Volunteer Labor Corps (OHP), we have made possible the establishment of OHPs for girls.



at the larger health service establishments. The female OHP participants working in these establishments can complete their education and take the hospital orderly course at the same time. The obstacle to the broader development of this form of employment is, as the voivodship leaders inform us, the lack of lodgings in which to house the OHP. Recently, a legal precedent also was created in the law on the universal obligation to defend the People's Republic of Poland which makes it possible to assign draftees to substitute service, consisting, among other things, of doing work in the health service establishments.

[Question] It is said, and I frequently encounter this viewpoint in my own reporting work, that aside from education, the health service numbers are among the most internally conflictual environments. Mr Minister, how do you evaluate the so-called interpersonal relations in the medical environment?

[Answer] I do not know to what degree the educational environment is agitated. But if we are talking about the health service, opinions circulating on this subject are diverse. One hears very often that medical workers belong to environments with the greatest solidarity. This opinion is connected with the specifics of tasks in the area of protecting health and saving human life as well as with the professional ethics which have been formed for a long time. It is generally known that the medical worker environment is marked by considerably fewer cases of infringement of norms of social coexistence and at the same time by greater dedication and preparation to deliver care often under the most difficult conditions. The difficult conditions of last year's winter proved this fact. Just as in other work establishments, the misunderstandings that do occur, mainly against a background of everyday matters, are resolved by the same labor forces or by superior units and do not have a great effect on the performance of tasks.

However, there exists in medicine the problem of evaluating the appropriateness of professional conduct, of conducting one's profession along the lines of one's knowledge and professional ethics. The skirmishes which take place in medicine both provoke heated and often controversial discussions in the very health service environment, and are reflected in press publications. I am in favor of discussing these issues, but with the proviso that the facts have to be reported accurately and that responsible opinions have to be expressed.

[Question] We hear that, more and more, medicine is drowning in paper work. This concerns the local labor unions especially, which are becoming increasingly more bureaucratic. What is your Ministry doing to decrease this paper mania?

[Answer] Since this subject has been raised many times, and since I wanted to be convinced of the actual state of things, I instructed that an appropriate fact-finding study be conducted. In January 1979, the documentation

done as part of outpatient and hospital treatment in four voivodships underwent a special check. The results indicated the groundlessness of the charge of excessive bureaucratization in medicine. In the public health service, the only documentation done by physicians and nurses is that which is indispensable to insure that there is data on the patient's state of health and the care he receives and also that which is necessary for reportage purposes.

The essential problem is to program the documentation in such a way as to keep an indispensable reserve of information to a minimum to limit writing. Such efforts are carried out by the Ministry. An experiment has been begun in the health service establishments in the Kalisz voivodship, where so-called problem-oriented documentation of physician and nursing operations will be used.

The scope and form of statistical reportage in the health service was the subject of efforts taken by the Interministerial Commission for the Rationalization of Reportage. Reportage that completely omits some data and that is satisfied with the collection of other data at two-year intervals has been reduced. This does not hinder physicians.

[Question] The state of investment in the health service can be considered unsatisfactory, and the state of investment in the field of hospital affairs--as simply catastrophic. In Warsaw, for example, construction of the hospital in Bródno has been going on for 13 years. The Białany hospital is in bad condition, and the hospital on Siles Street has been under repair too long. Is the Ministry taking some steps aimed at improving the situation?

[Answer] Recent years have not been auspicious ones for hospital construction. The insufficient progress of construction jobs has caused a need for 13,300 hospital beds in 1980. The matter of hospital construction has been the subject of Political Bureau and governmental debates many times. In 1978 the Council of Ministers adopted a resolution on the matter of hospital construction in the years 1978-1980, giving it priority for material and technical supply and for the investments which are especially important for the national economy. This year the Chairman of the Council of Ministers put the voivodship authorities under an obligation to intensify the actions resulting from the adopted resolutions and decisions. In general, one can say that where hospital construction is accompanied by interest on the part of the voivodship authorities and by the involvement of executors and investors, results are obtained which sanction the implementation of difficult and tension filled tasks for the years 1978-1980. Unfortunately, this is not yet a universal phenomenon, as is attested to by the fact that the Ministry's plan for construction-assembly jobs for 100 months of the current year was achieved 22.5 percent on a national scale, and 61.2 percent in investment outlays. The Ministry is systematically analyzing the course of achievement of investment tasks, and it is undertaking indispensable

interventions in cooperation with the Ministry of Construction. Visits have been made to the more important buildings under construction by participants in the leadership of both Ministries, and operative coordination and supply decisions have been made subsequently in the seats of construction associations with the participation of voivodship authorities.

Thanks, among other things, to the nearly universal use at present of documentation that is typical and repeatedly prepared by the Ministry, construction schedules have been becoming ever shorter except for a few installations. It is true that the construction of the hospital in Brodno was delayed over the course of several years as a result of execution difficulties, but this year jobs are being fulfilled at a good rate, and there is a real chance that the hospital will be put into use next year. On this occasion I would like to correct something: the construction of this modern hospital, construction carried out on a high level, will take approximately eight years, for construction was started in 1972, whereas the Bielany hospital took nearly ten years to build.

I agree that repairs, especially of hospitals, take too long. This is the result not only of difficulties in the fields of execution and lack of materials, but, first and foremost, of the far advanced use of buildings and installations, which causes the huge scope of modernization jobs. With this fact in mind, we are trying to see that, following repairs, installations will fill all the requirements for modernness.

To streamline repairs, conditions have been created to develop our own construction potential in the form of construction-repair establishments. However, we connect the general improvement in the implementation of health service and social welfare investments with the development of the specialized BUDOPOL association, which so far is implementing nearly 20 percent of our construction plan.

[Question] Besides health protection, social welfare is another area with which your Ministry is concerned. It is said, however, that the Ministry shows this concern a bit carelessly, just as it has done in matters of rehabilitation of individuals who are not totally competent. How are you implementing the comprehensive program in the field of social welfare and rehabilitation?

[Answer] It is difficult to agree with your assertion that issues of social assistance are treated carelessly. The phenomenon of the increasing number of elderly persons, who primarily avail themselves of various forms of assistance, has not taken us by surprise. Proof of this is the government's program of development of health protection and social welfare extending to 1990. In implementing this program, we have integrated health care and social assistance within the framework of one health service and social welfare establishment. This allows for the close collaboration of the two health service systems operating parallel to one another--basic health care and environmental social assistance. At the lowest level, we have based

the resolution of these tasks on the concept of the teamwork of the physician, nurse, and social worker. We already employ about 1,000 professional social workers. At present we have 16 postgraduate hospital schools and 15 postgraduate correspondence schools, which instruct close to 1,000 graduates annually. This provides a real basis for the gradual, teamwork resolution of basic care in all preventive treatment districts in Poland. For today the resolution of many new problems extending beyond the traditional, passive framework of social assistance is expected from our activity. I have in mind the seeking out of persons in need of health care and social and everyday care, the granting of health benefits to lonely persons who are chronically ill and bedridden, the organization of home life for them, etc. That is why we are developing social-custodial services concentrating particular attention on the expansion of forms of this assistance in rural environments. The budget for social assistance is growing from year to year. State and social assets for material assistance granted in the form of financial grants and grants in kind increased from 894 million zlotys in 1970 to 2.4 billion zlotys in 1979. Although this growth is nearly threefold, we are not always able to assure those interested of completely adequate assets.

[Question] Last year we had the lowest infant mortality index in our history. Poland's concept of continuous, comprehensive, and integrated health care for mother and child is well recognized and attracts great interest throughout the world. Nevertheless, it is still continually difficult to speak both of the comforts of childbirth and of the nursing of the small child; lying-in hospitals which are bursting at the seams, and procuring food for their infants is a considerable problem for mothers.

[Answer] The dynamics of the growth of the bed base in obstetrical and neonatology departments is not keeping pace with the growing number of births. This situation creates defined disturbances in obstetrical departments (postnatal hospitalization is increasing, reaching 95 percent of cases in 1978) and neonatology departments, and many other inconveniences for those giving birth. The need for a quick solution to this problem found expression in the guidelines of the PZPR Central Committee at the 8th Party Congress, among other places. The fact that there is still too much discrimination in allocating cadres of nursing and pediatric specialists represents a serious problem. We have undertaken actions aimed at alleviating this problem, among other things by expanding the system of perfecting medical cadres. Gradually we are also supplying obstetrical and neonatology departments with modern diagnostic and treatment implements, and we are creating conditions for scientific studies in this field.

Inadequacies in the supply of milk, food, and nursing remedies for infants are causing a lot of headaches. This problem was the subject of the session of the Sejm's Domestic Trade Commission held in October 1979. The Council for Family Affairs is also concerned with these matters. I am convinced that the actions undertaken recently will lead to further improvement of the present situation.

[Question] The situation on the drug market is still unsatisfactory. It is not only a matter of import, but also of the simplest medications: charcoal, emetics, and mineral water.

[Answer] The Minister of the chemical industry recently talked about the reasons for difficulties in supplying the market with medications in the columns of your paper. I can certify that the situation has undergone a certain improvement this year, although it is still not completely satisfactory. However, decisions have been made which betoken improvement. The resolution of the Council of Ministers from May 1979 on the matter of improvement of drug supply obligates the pharmaceutical industry to make additional drug deliveries. Moreover, it grants supplemental funds to the Ministries producing drugs and medical commodities, both in zlotys and foreign exchange, for modernizing production establishments, and it establishes priority for the pharmaceutical industry regarding supplies of the raw materials and containers needed for drug production. Execution of this Resolution ought to bring about successive improvement in Poland's pharmaceutical supply, thus leading to the elimination of the problem of insufficient drug supplies.

In all CEFARM Pharmaceutical Supply Enterprises, units have been established to study the drug market, a move which permits deeper analysis of drug needs. Information units also have been formed in these enterprises. Their aim is to provide access to exhaustive and precise scientific and supply information for medicine, and exhaustive and precise supply information for the population. This is very important, what with the incomplete assortment saturation of drugs. In our Ministry weekly conferences have been organized with drug producers at which current deliveries of drugs are assessed and at which a solution to existing difficulties is determined. In hospital pharmacies we are increasing the amount of produced intravenous fluids, the lack of which the hospitals feel acutely.

The participation of all of society is also essential in the totality of actions taken on behalf of full drug supply. We still note quite a few cases of wasting of drugs, lack of respect for physicians' recommendations, and cessation of treatment that has been started. These things also influence the level of market supply.

[Question] Inventions in the health service (new medications and apparatus) generally have a thorny path to struggle along (as, for example, Dr Lachowicz's antistaphylococcus drug, cravifen). When will the green light be given for them?

[Answer] The situation for inventions in the health service is certainly no worse than in other sectors of the national economy. Our Ministry treats inventiveness as an essential source of progress in equipping health service establishments. Therefore, we are initiating many undertakings to propagandize inventiveness, to direct inventors' efforts, and to properly evaluate them.



In the last three years two nationwide invention exhibitions have been organized in the health service, and at present an invention competition is being held on the occasion of Poland's 35th anniversary. The number of announced inventions increases annually by 23 percent, and the number of utilized inventions, by 11 percent annually.

These are the results of the activity on which we have a direct influence. There are difficulties with the use of inventions, however, the utilization of which is connected with the need to activate production. In such cases, the assistance of producers of medical implements or products is needed, a lack which often is a difficult obstacle to surmount. I believe that the lack of ultimate results in this group of inventions causes greater expectations and bitterness on the part of inventors, but the situation will improve only following significant expansion of the production capabilities of industry.

I would like to turn my attention to the binding, fairly rigorous regulations in Poland concerning the introduction of new drugs into medical practice. Thanks to these regulations, Poland has succeeded in avoiding many of the misfortunes which have touched other countries so painfully.

Hence, with new drug preparations being admitted into universal use, a fixed procedural course has to be maintained, and it cannot be shortened by limiting research, since this could have tragic consequences.

Craviten was introduced by the POLFA association on March 23, 1979, and it was registered on August 20. At present, the supplying of pharmacies with this drug is dependent on its producer, the Krakow Pharmaceutical Works. According to the information we have, it should become available to pharmacies within a year. But the preparation stafylokokeina--an original drug--is to be produced by the POLFA association. To date its application for registration has not been announced, since preliminary investigations of the drug are still in progress. As is well known, this preparation is a bacterial derivative, and its mechanism of action, and by the same token its course of administration, still have to be established. I can assure you that if the pharmaceutical industry copes with these problems, stafylokokeina will not have to wait long to be registered.

[Question] Heart and circulatory system diseases are among those diseases which are becoming increasingly more widespread. You, Mr Minister, are an active cardiac surgeon. Finally, therefore, a question from the field closest to you: what opportunities does modern cardiac surgery present to patients?

[Answer] Three basic procedural directions can be distinguished in this field. The first concerns the early treatment of congenital heart defects. In Poland, approximately one percent of liveborn infants suffer from heart defects. Formerly, children suffering from these diseases had no chance of surviving and died instantly or soon after birth, and the essential

cause of their death usually remained unknown. The development of cardiac surgery gives real possibilities today of curing at least two-thirds of children with congenital heart defects. Surgical correction of a basic defect can radically improve the chance of surviving the most difficult period of early childhood and permits the correct development of these children. We associate a lot of hopes with the establishment of four institutes of higher education in cardiac surgery: in Lodz, Krakow, Katowice, and Poznan, and the Child Health Center, where approximately 80 cardiac surgery beds are expected to be placed.

The second direction is the treatment of acquired defects, especially heart valve defects. It is estimated that the number of patients with acquired heart defects totals more than 40,000 in Poland, at least 10 percent of whom require surgical intervention, and then comprehensive rehabilitation. Cardiac surgery gives good results as a rule and permits normal activity and the prolongation of life for more than 80 percent of patients. The basic condition is the early initiation of surgical intervention.

Finally, the third direction is the surgical treatment of coronary patients. Cardiac surgery leads to the elimination of pain complaints in some of these patients and to a reduction in the frequency of occurrence of heart muscle failure.

The basic condition for the effectiveness of the cardiac surgery course is the correct organization of cardiological care, including cardiological diagnosis, mainly with the aim of early detection and preparation of patients for surgical intervention, and subsequently the full possibilities of carrying out this intervention. Therefore, a network of well-equipped and specialized cardiac surgery centers is necessary, the further development of which is provided for in the research and development program to prevent and combat circulatory system diseases which is being planned at the present time.

[Question] We thank you for the interview.

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## EXPANSION OF HEATING PLANT SYSTEM DESCRIBED

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[Article by Jerzy Wojcicki, Main Inspector of Power Management;  
"Expansion of Heating Plant System as Related to Power Industry  
Plans"]

[Text] The heating plant system, as a centralized heat generation and transmission system, today plays an important role in supplying the population and industry with the thermal energy essential for heating and air conditioning, and satisfying technological and social needs. Its expansion is functionally linked to the accomplishment of the broader program of municipal construction and industrial expansion. It is also an expression of the constant striving to improve the population's standard of living by satisfying, as efficiently as possible, the demand for heat and for improvement in environmental protection. Because of this, almost all of the country's industry, over 90 percent of the service installations, and approximately 50 percent of the urban residential buildings, i.e. a total of 35 percent of the country's residential buildings, receive heat from centralized sources.

Public-utility electric power and heat generating plants demonstrate the highest power conversion efficiency. Due to higher (by about one-fifth) boiler efficiency and power generation in an interlinked system (simultaneous production of thermal and electrical power), about 100 kg of standard fuel (fuel with a mean calorific value of 7,000 kcal/kg) is saved per 1 Gcal of heat produced in an electric power and heat generating plant.

It should be emphasized, however, that in most operational electric power and heat generating plants, large reserves remain due to the low interlinking factor, i.e., the very large production of heat in water boilers or peak steam boilers with no simultaneous production of electric power. The number of heating-plant turbine units must be gradually increased in public-utility and industrial electric power and heat generating plants. This will make it possible, beginning in 1981, to add more generating capacity to the electric power system and increase fuel savings.

#### Economic Criteria for the Heating-Plant System

The necessity for maintaining a high level of centralization in generating and distributing thermal power stems not just from the overall efficiency of this system of supplying cities and industries with heat, but is closely related to the national fuel balance. By instituting central generation of thermal power we can make broad use of our natural energy resource--hard coal--as a basic fuel, while obtaining a large reduction in employment and minimal, compared with a divided management, atmospheric pollution.

The country's limited resources of liquid and gas fuels and the high and steadily increasing cost of obtaining them by importation, eliminates these energy raw materials as basic fuels in the expanding heating-plant systems. Use of natural gas must be limited exclusively to those purposes where it can be justified on the basis of economy and efficiency, mainly the chemical industry and metallurgy, municipal management for meals preparation, and where necessary, for heating water in households. Electric power, as the most expensive form of energy, has and will continue to have limited application in heating.

The effectiveness of using hard coal is bound up with the broad installation of higher power conversion efficiency (of greater thermal capacity) boiler units in heating-plant systems and also with the ability to institute an interlinked management, i.e., common generation of thermal and electrical power, which is not possible in individual sources of heat (dispersed heating plants and built-in boiler rooms).

If heat were not produced by a centralized method in industrial and public-utility electric power and heat generating plants and in large heating plants, in order to satisfy the same demand, the dispersed heating sources would have to use more coal, e.g., about 14 million tons of stoker coal (5,000 kcal/kg calorific value) in 1978. Nationally, this would increase

fuel consumption for heating purposes in the construction industry by approximately 30 percent.

The development of central thermal sources in the public-utility power industry, projected for 1981-1985, should produce these results in the final year:

- a 2,000-MW increase in electric power, equivalent to an investment outlay of approximately 20 billion zlotys.

- amount of electric power produced: approximately (figure indistinct) million kWh/year, valued at 10 billion zlotys.

- fuel savings in an interlinked generating system on the order of 3.2 million tons of standard fuel [pu] per year, valued at 3.1 billion zlotys.

- fuel savings resulting from installation of higher efficiency equipment (as compared to equipment used in the economy), amounting to about 500,000 tons pu per year.

- employment savings of approximately 10,000 people (0.6 billion zlotys per year).

Admittedly the development of heat sources in interlinked management during 1981-1985 will require larger investment outlays, as compared with a divided management--larger by approximately 7.0 billion zlotys--but in a short time (about 3 years) they will be returned principally through fuel savings, additional electric power production and reduced employment.

#### Assumptions in Heating-Plant System Development

The basic assumptions in planned development of a heating-plant system are increased thermal demand for heating and household hot water in the residential-municipal sector and data on development of industrial and agricultural investments. Determining the size of housing and industry's demand for heat requires an exceedingly penetrating approach due to the negative economic and social effects should the estimate be incorrect.

An important factor in decreasing the demand for heat will be the government's gradual implementation of a program for reducing heat losses in construction by better insulation of building partitions, improvements in quality and structure of materials, and improvements in quality of construction work. The reserves existing in this area amount to up to 25 percent of the heat delivered to the building trade.



Realization of this program, however, will be delayed, due mainly to materials difficulties, and the process of heat loss reduction by improvements in structure of building partitions is proceeding too slowly, as initial work in this field has shown. On the other hand, some increase in the thermal energy demand index must be allowed for due to the gradual improvements in housing comfort, the height of the buildings, the increase in glazed surfaces, the extent of air-conditioning, etc. These factors will cause the thermal demand index to rise to about 26 kcal/m<sup>3</sup>h, and in industry, mainly due to an increase in the range of ventilation and air-conditioning, to as much as 50 and 60 kcal/m<sup>3</sup>h. New multi-family residential construction is, and will continue to be, equipped fully with central heating and hot water. Furnace heating in existing buildings will be gradually eliminated and replaced with central heating.

Agricultural goals project a very large growth in demand for heat necessary for plant and animal production, due to construction of a large number of greenhouses, livestock fattening farms, fruit and vegetable storage rooms, and accompanying structures. This has greatly increased the demand for heat, largely because of the very low level of these requirements in past years.

The current five-year investment program in this field forecasts construction of over 100 greenhouses of 6 hectares each, with a unit demand of 4 Gcal/1 hectare. Approximately 7,000 Tcal of hot water heat must be produced in 1980 to meet the heat requirements of these buildings. It is envisaged that this amount of heat will be tripled by 1990. About 30 greenhouses will obtain heat from public-utility power sources, about 20 will be supplied by the industrial power industry, and the remainder will be equipped with their own heat sources, most of which will be hard coal-fired.

Along with the forecasted growth in demand for heat that forms the basis of heating-plant system expansion, an important factor affecting the direction of engineering solutions is the country's present and future fuel situation. As the previously mentioned rules for fuel utilization indicate, the basic fuel in all types of heat sources will continue to be hard coal. In installations where environmental protection is mandatory and especially in protected regions, use of heating oil will be permitted, and very exceptionally, natural gas.

The basic thermal carrier for heating and for preparing hot household water in urban centers will continue to be hot water produced in electric power and heat generating plants and in

heating plants, delivered to consumers through thermal networks. Also, areas of single-family housing should receive heat in hot water from central heating-plant systems. For some single-family construction in urban and rural areas, boilers fired chiefly by coke, and to a much lesser degree by heating oil, and most exceptionally by natural gas, will be used for heating. Stored electric heating may also be used sporadically.

No wide application of solar energy is foreseen for heating purposes due to the limited feasibility of storing the necessary heat under our climatic conditions. However, the use of heat pumps is foreseen for heating dispersed and social service buildings. The utilization of solar energy in the future is possible, but only as a source of heat for household water, which requires much lower amounts of heat, making storage more feasible.

#### Development Program for Central Heating-Plant Systems

Centralization of heat delivery to the population, developed chiefly in large urban-industrial centers and also in many smaller centers, encompasses almost all industrialized construction, planned at 500,000 dwellings in 1979 and 1980, and a million and a half dwellings during the 1981-1985 five-year period. This program requires that new capacities be ensured in thermal sources, on the order of 23,000 Gcal/h.

Public-utility power sources now supply 28 regions covering 43 towns. During 1981-1985, public-utility power sources should supply thermal energy to the following six towns: Kielce, Rzeszow, Radom, Czestochowa, Torun and Wloclawek.

Total thermal power attainable in public-utility power sources is now approximately 18,200 Gcal/h and will increase to 19,750 Gcal/h in 1980. Taking into account the envisaged increase of about 12,600 Gcal/h during 1981-1985, total thermal power in 1985, as forecast, will be 32,350 Gcal/h. This should essentially guarantee full coverage of consumer requirements supplied from public-utility power sources.

It should be noted that in the light of the above balance, there will be intermittent or continuous shortages in filling peak-period thermal demand (during low-temperature periods). This is due mainly to difficulties in scheduled deliveries of basic equipment for the power industry and to reductions caused by postponements in investment limits. The power industry needs for basic equipment are tremendous,

It is forecast that to satisfy the thermal requirements of

just construction during 1981-1985, the public-utility power industry must obtain from industry approximately 30 steam boilers, 230 to 430 t/h output; 55 hot water boilers, 120 and 200 Gcal/h output; and about 30 turbine units, 25 to 100 MW generating capacity. Industry already is having difficulty in meeting the power industry's demand for 230 t/h steam boilers, and particularly for 120 Gcal/h thermal power hot water boilers. This situation will require appropriate measures aimed at finding a way to fully meet public-utility power's needs.

Municipal heating plants are located principally in small or medium-size towns and their total thermal power is approximately 15,000 Gcal/h. By 1980 this potential will increase by 4,500 Gcal/h, and during the 1981-1985 five-year period it will further increase by 10,000 Gcal/h.

The largest sources of this type of heat, based on 25 Gcal/h hot water boilers, are the following heating plants: In Kielce, 150 Gcal/h; Radom, 100 Gcal/h; Legionow, 100 Gcal/h; Inowroclaw, 50 Gcal/h; Kolobrzeg, 40 Gcal/h; Grudziadz, 60 Gcal/h; Wloclawek, 70 Gcal/h; and Pabianice, 60 Gcal/h.

Municipal heating plants, together with industrial heating plants, satisfy about 58 percent of the thermal demands of new residential construction built during 1978-1985.

Along with the expansion of industry, there will be further expansion of electric power and heat generating plants and industrial heating plants. Total thermal power from these sources should increase by 4,500 Gcal/h during 1979-1980, and by 9,500 Gcal/h during 1981-1985.

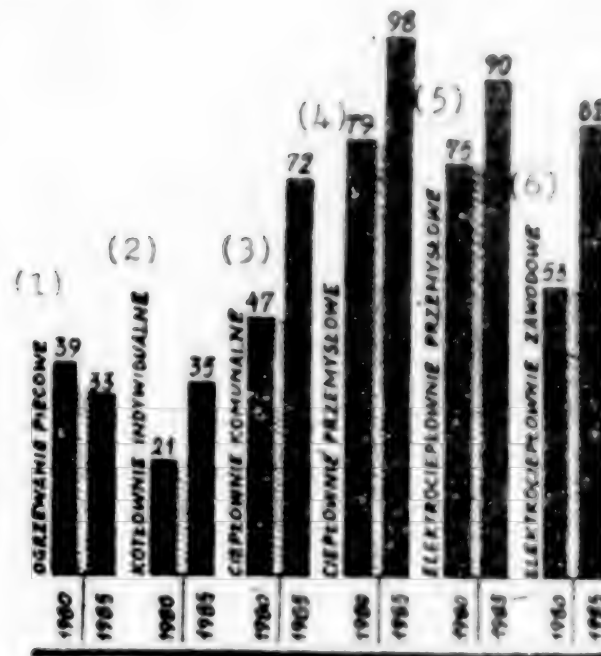
The systems for supplying urban consumers with heat from industrial plant sources should definitely be expanded, on the basis of joint investment for needs of industry and construction in general. The economic and social benefits of such action are not yet being fully recognized by organizational units of the industrial sectors. This problem is one for the local authorities and industry to act on jointly if there is to be effective improvement in energy management.

#### Factors in Program Realization

To fully satisfy the thermal demands of housing and servicing construction, industry and commercial farming, there must be:

1. On-time completion of the heating-plant system development program during 1979-1985 as it concerns construction and expansion of electric power and heat generating plants by the

## How Thermal Demands Are Satisfied



- Key:
1. Furnace heating
  2. Individual boilers
  3. Municipal heating plants
  4. Industrial heating plants
  5. Industrial electric power and heat generating plants
  6. Public-utility electric power and heat generating plants

Ministry of Power Industry and Atomic Energy, and regional and settlement boiler houses by the Ministry of Administration, Local Economy and Environmental Protection. This particularly involves:

-- ensuring indispensable investment outlays for program realization,

-- timely supplying of planned power industry investments with basic equipment, above all with boilers of appropriate output and with turbine units. This also requires expansion of the boiler industry and also production intensification by utilization of reserves.

2. Instituting mandatory participation in realization and financing of joint heating plant investments for needs of industry and general construction.

3. Strictly adapting schedules for construction of heating plant networks to start-up dates of heat sources.

4. Accelerating implementation of the heat loss reduction program in construction, particularly as it relates to:

5. Accelerating the outfitting of heating-plant systems with equipment for automatic control and delivery of heat. Anticipated savings in heat consumption are estimated to be 10 to 15 percent of transmitted energy.

6. Accelerating the mastery of industrialized methods of building thermal networks, particularly prefabricated, ductless networks, insulated with polyurethane and protected from humidity and corrosion.

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## POWER INDUSTRY FACTS, FIGURES PRESENTED

Warsaw RADA NARODOWA GOSPODARKA ADMINISTRACJA in Polish No 22,  
3 Nov 79 pp 23-25, 40, cover

### [Excerpts] Outlays for the Power Industry

-- The cost of building 1 MW electric power in a new thermal electric power plant is 10-12 million zlotys. After taking costs of transmission, conversion, etc., into account, it is about 20 million zlotys.

-- The technical development work indicator, calculated from the value of fixed assets per 1 worker, is 7 times larger in the power industry than the national average.

-- The average building cycle for a thermal electric power plant is 6-7 years.

-- Almost 40,000 tons of steel was used in the construction of the Kozienice power plant.

### Power Plants on the Vistula

-- After construction of hydroelectric power plants on the Vistula is complete (there will be 30 of them), production will amount to 6.1 billion kWh/yr (all the country's power plants now produce 116 billion kWh/yr), which will save the national economy about 4 million tons of coal per year. This is the amount of coal produced by two medium-size mines; their output would require 2,000 trains, each made up of 40 large hoppers, to transport it to thermal electric power plants.

Power management in the field is conducted by multiplant enterprises (District Power Plants--ZEO).

## Power Districts



### Key:

1. Power Plants of the Northern District
2. Power Plants of the Western District
3. Power Plants of the Central District
4. Power Plants of the Southern District
5. Power Plants of the Eastern District

Poland is divided into five power plant districts:

I. Power Plants of the Central District (ZEOC) with its seat in Warsaw.

-- The district encompasses 12 provinces: Warsaw Capital, Białystok, Ciechanow, Lodz City, Lomza, Ostroleka, Plock, Piotrkow Trybunalski, Siedlce, Sieradz, Skierniewice and Suwalki.

-- The district has 15 public-utility power plants: 12 thermal electric, 2,205 MW total generating capacity, and hydroelectric, 94 MW total generating capacity.

-- It is divided into 5 power plants and 34 power regions.

II. Power Plants of the Eastern District (ZEOW) with its seat in Radom.

-- The district encompasses 10 provinces: Radom, Biala Podlaska, Chelm, Kielce, Krosno, Lublin, Przemyśl, Rzeszow, Tarnobrzeg and Zamosc.

-- The district has 5 public-utility power plants: 3 thermal electric, 2,982 MW total generating capacity, and 2 hydroelectric, 144 MW total generating capacity.

-- It is divided into 4 power plants and 37 power regions.

III. Power Plants of the Southern District (ZEOP) with its seat in Katowice.

-- The district encompasses 7 provinces: Katowice, Bielsko-Biala, Czestochowa, Krakow, Opole, Tarnow and Nowy Sacz.

-- The district has 35 public-utility power plants: 19 thermal electric, 8,034 MW total generating capacity, and 16 hydroelectric, 111 MW total generating capacity.

-- It is divided into 7 power plants and 56 power regions.

IV. Power Plants of the Western District (ZEOZ) with its seat in Poznan.

-- The district encompasses 12 provinces: Poznan, Gorzow Wielkopolski, Jelenia Gora, Kalisz, Konin, Legnica, Leszno, Pila, Szczecin, Walbrzych, Wroclaw, and Zielona Gora.

-- The district has 61 public-utility power plants: 10 thermal electric, 2,103 MW total generating capacity, and 51 hydroelectric, 154 MW total generating capacity.

-- It is divided into 8 power plants and 52 power regions.

V. Power Plants of the Northern District (ZEOPn) with its seat in Bydgoszcz.

-- The district encompasses 8 provinces: Bydgoszcz, Elblag, Gdansk, Koszalin, Olsztyn, Slupsk, Torun, and Wloclawek.

-- The district has 50 public-utility power plants: 8 thermal electric, 493 MW total generating capacity, and 42 hydroelectric plants, 393 MW total generating capacity.

-- It is divided into 6 power plants and 35 regions.

At the beginning of 1979 there were a total of 401 power plants in Poland: 57 public-utility thermal electric power plants and 229 industrial electric power plants. During 1970-1978, the following were added: 11 new thermal electric power plants and 7 industrial, including 2 new electric power plants in 1978.

-- The public-utility thermal electric power plants contain 246 turbine units, 14 of which have the lowest generating capacity, to 5 MW; 55 (the majority), 200 MW; 1, 500 MW, (in the Kozienice power plant, put into operation in 1978) and 24 condenser turbine units, 120 MW. Average turbine unit capacity is 81.7 MW, 33 MW higher than in 1970. The public-utility thermal electric power plants contain 340 power boilers, including 242 pulverized-fuel, 88 stoker-fired, 8 gas, and 2 liquid fuel. They also contain 77 heating boilers.

In 1975 there were 60 heating boilers. The majority, 35, have an output of 100-150 Gcal/h; 5, over 150 Gcal/h.

The largest

-- thermal electric power plant is Kozienice (2,000 MW), operating on hard coal;

-- brown coal-fired thermal electric power plant is Turow (2,000 MW). In 17 years of operation it has supplied as much power to the electric network as the country consumes in a year and a half;

-- conventional hydroelectric power plant is Wloclawek (160 MW). It produces the country's cheapest electric power.

-- pumped-storage electric power plant is Porabka-Zar (500 MW ultimate);

-- electric power and heat generating plant is Siekierki, in Warsaw;

-- power plant under construction is the brown coal-fired Belchatow. In 1985 its generating capacity will exceed 4,000 MW.

-- power plants included in the systems power plants are: Kozienice (2,100 MW), Rybnik (1,600 MW), Dolna Odra (1,600 MW), Jaworzno III (1,600 MW), Ostroleka (694 MW), Stalowa Wola, Laziska, Lagisza, Siersza-Turow, Patnow-Adamow-Konin, Porabka-Zar.

The oldest thermal electric power plant in Poland is Gdansk-Olowianka, built in 1895 (now an electric power and heat generating plant).

The newest is Polaniec, which by the end of December of this year will start up its first 200-MW unit.

The oldest pumped-storage electric power plant still operating in Poland is Struga, on the Slupia River, started up in 1898.

The newest will be the Mloty pumped-storage electric power plant now being built, which will contain 3 turbine units, 250 MW each.

The oldest thermal electric power plant built entirely after the war in Zeran is now an electric power and heat generating plant. Equipment was supplied by the USSR.

The oldest hydroelectric power plant built after the war is Porabka, on the Sola River, with a 12.5 MW generating capacity.

The largest power unit in Polish power plants (500 MW) has been in operation since the beginning of the year in the Kozienice power plant. A second such unit will be put into operation at the end of the year; two power units (500 MW) will be able to supply all consumers in the Warsaw Capital province.

The most numerous units built after the war are the 200-MW units, of which there are 50 in Polish power plants.

The highest water head was attained in the Porabka-Zar pumped-storage electric power plant (425 m).

The tallest power plant chimney is 300 m high.

The highest dam (82 m) is at the Solina power plant.

The most interesting solution to an engineering problem is seen at the Porabka power plant, whose engine room is inside a hill, on the top of which is a reservoir built to serve the needs of the power plant.

Total generating capacity of power plants in 1970 was 13,891 MW; in 1977 it was 21,749 MW; and in 1978 it was 23,833 MW, of which 15,708 MW was in public-utility thermal power plants, 1,663 MW in industrial power plants, and 788 MW in hydroelectric power plants. Thermal power plants' share of total capacity is 15 percent; hydroelectric, 5 percent.

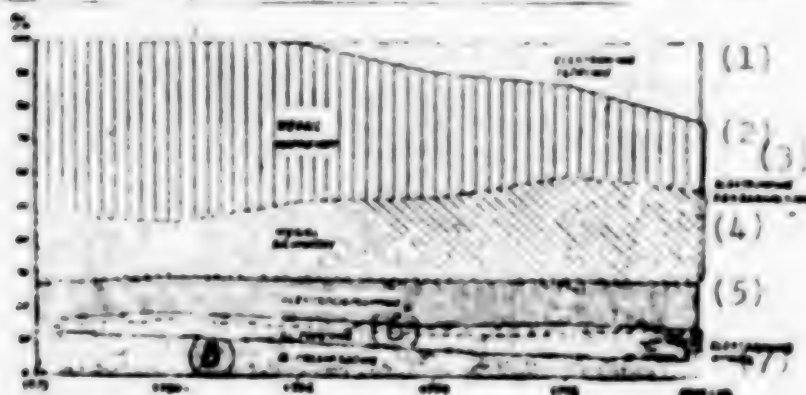
Average capacity of a thermal power plant is 353 MW; highest, 2,100 MW.

Average capacity of an industrial power plant is 13 MW; highest, 175 MW.

Average capacity of a hydroelectric power plant is 7 MW; highest, 375 MW. Number of hydroelectric power plants with over 100 MW capacity is 4.



# Distribution of Generating Capacity in the Power Industry System (in percent)



- key:
1. Nuclear power plants
  2. Hard coal
  3. Conventional power plants
  4. Brown coal
  5. Electric power and heat generating plants
  6. Pumped-storage electric power plants
  7. Hydroelectric power plants
  8. Industrial power plants

Total electric power production in Poland in 1970 was 64,532 GWh; 109,362 GWh in 1977; 115,558 GWh in 1978, of which 105,307 GWh was produced by public-utility power plants and 10,251 by industrial power plants.

Thermal electric power plants produce 98 percent of the electric power. Only 2 percent is produced by hydroelectric plants.

## Coal for the Power Industry

About 55 million tons of coal are hauled each year for the use of the power industry. The largest hauler is the Polish State Railways, which hauls about 60 percent. This means that during a year over 33,000 trains with coal leave Silesia for power plants and electric power and heat generating plants, an average of 90 trains per day. The remaining coal is hauled by the mining railroad, power industry railroad, narrow-gauge railroad, inland waterways, motor transport, and conveyor belts.

The farthest that coal is hauled from the Silesian mines is to the "Wybrzeze" power plant complex (Gdynia, Gdansk I and II) and to Elblag, and also, if the water level on the Odra River does not permit the use of barges, to the Szczecin electric power and heat generating plant and to the Pomorzany power plant.

# Progress in Brown Coal Extraction to 1990



## Key:

1. Poorly prospective areas
2. Prospective areas
3. Existing mines
4. Mines under construction
5. Planned mines - to 1990
6. Extraction of brown coal
7. Year
8. Millions of tons

During the last three months of this year, the railroads and other haulers will deliver about 15.5 million tons of coal to the power industry.

-- To generate 1 kWh electric power, about 0.5 kg of hard coal or 1 kg of brown coal is consumed.

-- Public-utility thermal power plants consume over 50 million tons of hard coal per year (more than one-fourth of the country's mining output) and 37,000 tons of brown coal (over 90 percent of the country's mining output) and about 1 million tons of heating oil.

-- A 200-MW power unit consumes about 90 tons of hard coal per hour, i.e., 2 carloads of coal. About 50 carloads of coal must be supplied for one unit every 24 hours.

-- The 24-hour requirement for coal by a large power plant, e.g., Kozienice, is about 15,000 tons, i.e., about 10 trains of coal.

## Power Plants Under Construction (Projected to 1985)

### Thermal electric

-- Polaniec power plant, first stage, 1600 MW, 200-MW units. First results, by end of 1979.

-- Belchatow power plant, 4,000 MW. First results in 1980.

-- Opole power plant, hard coal-fired, (6 x 360 MW). First results in 1982.

-- Zatonie power plant, (2 x 360 MW), brown coal-fired. Sited in Turossowski Basin. Work to begin in 1979. First results in 1985.

### Hydroelectric

-- Zarnowiec pumped-storage electric power plant, 680 MW. Results in 1980 and 1981.

-- Zapora in Czorsztyna. Power plant generating capacity in 1983, 90 MW.

-- "Vistula" program. Results in 1985-1990. Total generating capacity of thermal electric and hydroelectric plants built will be approximately 9,300 MW.

The public-utility power industry is made up of 11 million consumers, of whom 30,000 are large industrial consumers and the remainder are small consumers such as households, farms, nonresidential buildings, etc.

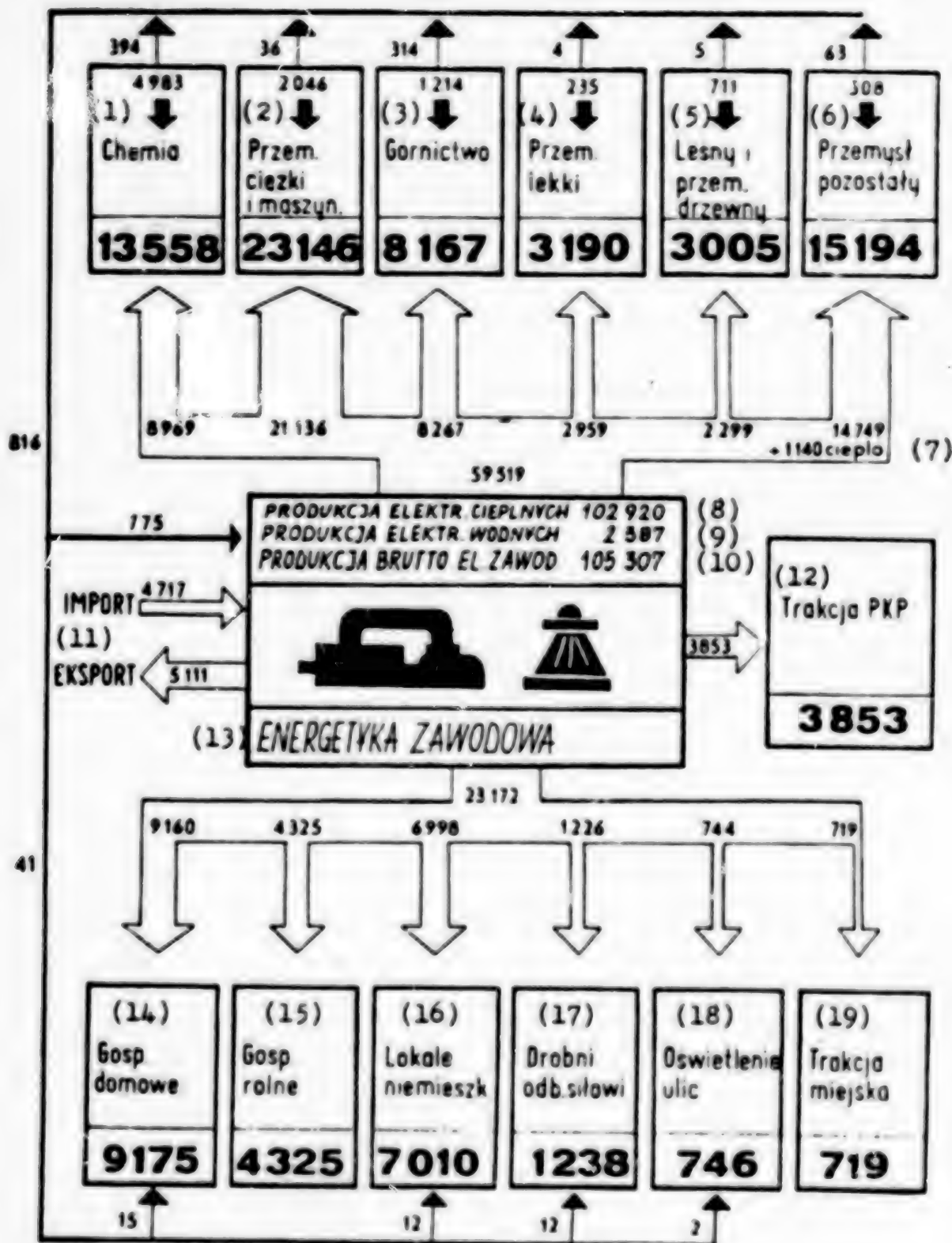
Of every 10 kWh electric power supplied to consumers, industry uses 7 kWh; electric traction, 0.5 kWh; and the remaining 2.5 kWh goes for household and municipal use.

Urban households consume an average of 1,319 kWh electric power per year (in 1970 they consumed 793 kWh). To generate this power and deliver it to the consumer, 800 kg of hard coal are needed.

Rural households consume an average of 1,053 kWh electric power per year (in 1970 they consumed 561 kWh).

# Electric Power Balance by Consumer Groups (GWh)

[Key on following page]



Key:

1. Chemical industry
2. Heavy and machine industry
3. Mining
4. Light industry
5. Forestry and timber industry
6. Other industries
7. Heat
8. Thermal electric power plant production
9. Hydroelectric power plant production
10. Public-utility power plant production
11. Export
12. Polish State Railways traction
13. Public-utility power industry
14. Households
15. Farms
16. Non-residential buildings
17. Small power consumers
18. Street lighting
19. Urban traction



Gross Production of Electric Power  
by Provinces in 1978 (GWh)<sup>a)</sup>

No.	Province	Polish power	Public-utility		Industrial	
		plants	power plants			power
		Aggregate	Total	Thermal	Hydro	plants <sup>b)</sup>
1977						
	Aggregate - country	109,356	98,956	96,562	2,394	10,400
1978						
		115,553	105,307	102,920	2,387	10,246
1	Katowice	35,254	33,448	33,448	-	1,806
2	Jelenia Gora	14,158	14,037	13,964	73	121
3	Konin	13,234	13,234	13,234	-	4
4	Szczecin	10,908	10,648	10,638	10	260
5	Radom	10,591	10,511	10,511	-	20
6	Krakow City	5,259	4,320	4,287	33	939
7	Warsaw Capital	3,966	3,897	3,778	119	69
8	Ostroleka	3,761	3,761	3,761	-	-
9	Opole	2,444	1,589	1,549	40	855
10	Tarnobrzeg	2,242	2,092	2,092	-	150
11	Lodz City	2,005	1,674	1,674	-	331
12	Bydgoszcz	1,294	827	750	77	467
13	Plock	1,279	-	-	-	1,279
14	Bielsko-Biala	1,226	492	449	43	734
15	Wroclaw	1,205	1,069	971	98	136
16	Gdansk	1,059	897	862	35	162
17	Wloclawek	944	860	-	860	84
18	Tarnow	665	40	-	40	625
19	Lublin	473	7	7	-	466
20	Elblag	433	419	400	19	14
21	Gorzow Wielkopolski	391	302	294	8	89
22	Walbrzych	343	6	-	6	337
23	Koszalin	334	329	-	329	5
24	Legnica	253	-	-	-	253
25	Krosno	249	216	-	216	33
26	Piotrkow Trybunalski	215	16	-	16	199
27	Zielona Gora	201	192	28	164	9
28	Czestochowa	159	15	15	-	144
29	Poznan	158	72	72	-	66
30	Bialystok	149	114	114	-	35
31	Nowy Sacz	137	136	-	136	1
32	Rzeszow	122	-	-	-	122
33	Torun	73	-	-	-	73

[Continued]

No.	Province	Polish power plants	Public-utility power plants		Industrial power plants <sup>b)</sup>	
		Aggregate	Total	Thermal	Hydro	
1977						
Aggregate - country		109,356	98,956	96,562	2,394	10,400
1978						
		115,553	105,307	102,920	2,387	10,246
34	Skierniewice	71	-	-	-	71
35	Kalisz	62	22	22	-	40
36	Kielce	61	-	-	-	61
37	Przemysl	39	-	-	-	39
38	Zamosc	39	-	-	-	39
39	Pila	29	23	-	23	6
40	Slupsk	29	29	-	29	-
41	Chelm	24	-	-	-	24
42	Leszno	24	-	-	-	24
43	Olsztyn	16	13	-	13	3
44	Ciechanow	10	-	-	-	10
45	Siedlce	7	-	-	-	7
46	Sieradz	7	-	-	-	7
47	Suwalki	5	-	-	-	5
48	Lomza	2	-	-	-	2
49	Biala Podlaska	-	-	-	-	-

a) Grouped by plant method.

b) Power plants with 0.5+ MW generating capacity.

Net Consumption of Electric Power  
by Provinces in 1978--by Charge-Rate Groups (GWh)a)

No.	Province	Aggregate consumption	Construction and other large consumers	Polish State Railways traction	Residential-municipal consumers	Households	Including					Street lighting	Urban traction	Power consumption per one resident (kWh)
							Non-residential buildings	Farms	Small power consumers	Lighting				
	Aggregate - country	95,466	68,400	3,853	23,213	9,177	7,008	4,325	1,237	746	720	2,727		
1	Katowice	20,997	18,078	433	2,486	1,407	716	80	99	96	88	5,829		
2	Warsaw Capital	5,610	3,027	292	2,291	961	817	84	87	115	227	2,504		
3	Krakow City	4,780	3,818	155	807	367	245	61	37	26	71	4,130		
4	Opole	4,525	3,632	255	638	221	195	164	41	17	-	4,611		
5	Bielsko-Biala	3,396	2,815	66	515	267	154	54	24	16	-	4,234		
6	Bydgoszcz	2,954	2,075	216	663	274	165	152	41	14	17	2,895		
7	Lodz City	2,949	1,956	50	943	469	292	29	35	32	86	2,657		
8	Legnica	2,829	2,504	-	325	109	113	80	15	8	-	6,428		
9	Wroclaw	2,717	1,731	135	851	323	275	128	45	26	54	2,573		
10	Kielce	2,681	2,026	158	497	186	138	113	42	18	-	2,548		
11	Lublin	2,604	2,020	53	531	181	143	144	39	14	10	2,855		
12	Tarnow	2,550	2,201	104	245	83	60	77	18	7	-	4,311		
13	Gdansk	2,446	1,252	199	995	421	354	126	23	25	46	1,867		
14	Poznan	2,327	1,149	193	980	412	288	144	47	34	55	1,927		
15	Czestochowa	2,182	1,530	237	415	180	108	81	21	17	8	2,970		
16	Szczecin	2,110	1,260	3	847	264	315	170	32	26	40	2,385		
17	Konin	2,062	1,721	141	200	74	47	60	14	5	-	4,793		
18	Walbrzych	1,810	1,316	31	463	196	165	63	23	16	-	2,511		
19	Plock	1,773	1,478	38	257	91	69	76	13	8	-	3,635		
20	Tarnobrzeg	1,442	1,229	-	213	62	52	76	18	5	-	2,651		
21	Piotrkow Trybunalski	1,401	941	177	283	110	78	69	19	7	-	2,383		
22	Jelenia Gora	1,321	960	10	351	131	138	43	28	10	1	2,689		
23	Torun	1,312	896	-	416	157	112	112	19	9	7	2,173		
24	Gorzow Wielkopolski	1,068	743	4	321	106	95	81	25	8	6	2,390		

[Continued]

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No.	Province	Aggregate consumption	Construction and other large consumers	Polish State Railways	Residential-municipal consumers	Households	Non-residential buildings	Farms	Small power consumers	Street lighting	Urban traction	Power consumption per one resident (kWh)
25	Radom	1,016	556	112	348	111	83	105	36	13	-	1,479
26	Kalisz	1,006	504	132	370	139	91	107	20	13	-	1,534
27	Zielona Gora	983	572	-	411	158	143	76	25	9	-	1,654
28	Olsztyn	973	440	-	533	161	168	152	42	10	-	1,433
29	Rzeszow	834	495	59	280	95	79	75	23	8	-	1,326
30	Sieradz	774	369	207	198	64	53	66	9	6	-	2,004
31	Bialystok	772	449	-	323	110	84	87	27	15	-	1,227
32	Koszalin	689	273	-	216	112	170	99	28	7	-	1,536
33	Skiernewice	682	322	142	218	80	56	63	15	4	-	1,738
34	Siedlce	658	252	92	314	87	67	138	13	9	-	1,089
35	Wloclawek	655	442	21	192	73	48	56	11	4	-	1,608
36	Nowy Sacz	652	305	19	328	121	108	74	13	12	-	1,065
37	Pila	625	318	14	293	103	82	80	18	10	-	1,463
38	Elblag	618	299	-	319	99	103	88	18	7	4	1,429
39	Krosno	586	404	-	182	60	61	45	11	5	-	1,353
40	Chelm	541	433	-	108	31	26	41	7	3	-	2,412
41	Ostroleka	475	296	13	166	49	40	65	8	4	-	1,305
42	Slupsk	468	172	-	296	93	99	79	16	9	-	1,275
43	Suwalki	460	188	-	272	75	71	98	22	6	-	1,095
44	Leszno	442	178	56	213	80	50	63	14	6	-	1,267
45	Przemysl	441	240	31	170	35	49	71	9	6	-	1,167
46	Zamosc	384	157	-	227	60	40	106	15	6	-	815
47	Ciechanow	339	134	-	205	58	47	81	13	6	-	846
48	Lomza	336	174	-	162	35	29	80	12	6	-	1,047
49	Biala Podlaska	211	75	-	136	36	27	63	7	3	-	747

a) Grouped by plant method. Combined with electric power consumption from production of industrial power plants of 0.5+ MW.

## HYDROELECTRIC POWER STATION SYSTEM DESCRIBED

Warsaw RADA NARODOWA GOSPODARKA ADMINISTRACJA in Polish No 22,  
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[Article by Marian Hoffmann: "Hydroelectric Power Plants in the National Electric Power System"]

[Text] Due to the small hydropower engineering resources of all Polish rivers, amounting to 12 billion kWh per year (TWh/yr), the share of hydroelectric power plants in satisfying electric power demand is, and will continue to be, small in our country, within the 3-4 percent range. In satisfying the system's peak load, calculated in megawatts (MW), hydroelectric power plants' share is larger, amounting to 7-9 percent. But because of certain specific economic and utilization characteristics of hydroelectric power stations, they have been assigned some very important tasks in the Polish electric power system. In connection with this, the ministry developed a broad plan for accomplishing these tasks, a plan which was approved by a decision of the Presidium of the Government on February 16, 1979.

1. One of the characteristic features and the most important advantage of hydroelectric power plants, not only for electric power but for the country's whole broadly conceived energy management, is the fact that in using a primary power source that is constantly renewing itself for the production of electric power, another exhaustible energy source is being conserved, i.e., coal. Roughly, it can be said for every kWh power produced in hydroelectric power plants,  $2/3$  kg of hard coal is saved for the national economy.
2. The next, also very valuable advantage of hydroelectric power plants, is that they do not have an adverse effect on the natural environment, since they do not emit exhaust gases or ash (storage for which requires considerable land areas) and they do not cause water losses or water pollution, as is the case in the operation of conventional thermal electric power plants.



3. The following advantages of hydroelectric power plants are related to their operational characteristics. Because hydro turbine units can be very quickly started up, stopped, and the size of their load changed (start-up from standstill to full load takes 1-2 minutes), and because start-ups and stops can be repeated scores of times during a 24-hr period, hydroelectric power plants contribute to improvement in flexibility of operation in the electric power system, in its ability to be regulated (within the country and in power exchanges with systems of neighboring countries), and in so doing increase the guarantee of proper supply to all consumers.

4. Among the advantages of hydroelectric power plants, a not unimportant role is played by the low prime cost of generating electric power; the lowest cost in the entire system is achieved by the first hydroelectric power plant on the Lower Vistula Cascade in Wloclawek, in which the unit cost is below 10 groszy Per kWh, while in the most economical thermal electric power plants (operating on brown coal), this cost is 25 groszy/kWh and more. In addition, hydroelectric power plants have a low employment index--in the Wloclawek power plant it is 0.25 persons per MW. And so especially in view of the high operational flexibility and low (unit) generating cost, hydroelectric power plants are the most suitable for satisfying peak loads.

5. Deserving of mention also is the high availability factor, i.e., the low number of hydroelectric power plant emergencies, making them very reliable supply sources.

6. One of the important advantages of hydroelectric power plants for administrative authorities is that near the plants there frequently arise extended water areas, which, on the one hand create favorable conditions for the development of recreational areas, and on the other hand, contribute to the stabilization of water conditions at a given section of the river, solving many city planning problems.

#### Types of Power Plants

In Poland, from the standpoint of the nature of the work in the electric power system, power plants can be classified as follows:

-- Hydroelectric power plants of the basic type, i.e., operating on the basis of a system load diagram are storage reservoirs. Their peak power output must always correspond to the size of natural inflow to the power plant. That is why quite often these power plants are called river hydropower plants. Small hydroelectric power plants, generally located on low weirs, belong to this group.

-- Where a power plant is located near a reservoir, it can, depending on the size (usable volume of reservoir), be of the peak load period type or sub-peak load period type.

-- Near large storage reservoirs, large peak load power plants are built, below which, however, a surge tank with a power plant must be built. Such pairs, e.g., are the Roznow and Czchow power plants on the Dunajec, and the Koronowo and Tryszczyn on the Brda.

-- If the head of the first power plant is quite large (generally above 30 meters) and the volume of the lower surge tank can be further enlarged, conditions exist for considerable increase in capacity of the peak load period power plant by addition of a pumping unit. With the pumping unit, water can be pumped from the lower surge tank to the upper reservoir during periods of low demand for electric power (mainly during the night).

-- The newest type of hydroelectric power plants are the pumped-storage plants, as, e.g., the first of its type in our country, Zydowo (150 MW) in the Koszalin province; the recently started up Porabka-Zar plant (500 MW), which is also the first Polish underground power plant; and the Zarnowiec plant now under construction.

#### How Pumped-Storage Power Plants Operate

The operation of pumped-storage power plants is based on two water reservoirs which should be located as close to each other as possible and have the large possible differences in water levels. A hydroelectric power plant is installed near the lower reservoir, connected to both reservoirs by means of pipes or tunnels.

The pumped-storage power plant contains machinery units consisting of a water turbine, pump, and an electric machine that serves alternately as a generator and as a driving motor. The rotors of these three machines are mounted on a single common shaft.

When there is a large demand for power in the system, as occurs during peak load periods (in our country that is 0800 and 1800), the water from the upper reservoir is released through the turbine to the lower reservoir, and driven by the turbine, the generator produces the costliest peak load power.

During the nightly non-peak load period when demand for power is lowest and the turbine units in the thermal electric power plants are very lightly loaded, the pumped-storage plant takes very cheap electric power from the system and by using the electric motor, drives the pump which in turn forces the water from the lower to the upper reservoir.

During this cycle, sometimes described as "power enrichment through storage", losses occur, of course, amounting to approximately 25 percent. This means that from 1 kWh of cheap "night" power, 0.75 kWh of the most expensive--peak load period--power is produced. The great advantage of this system lies in the fact that the ratio of peak load power cost to night power cost is more than 3.5:1.

At present, pumped-storage power plants, due to their tremendous operational flexibility, are used to fulfill still another task in the power system, namely, they are becoming the main base for regulating power, particularly regulation of the amount and direction of power exchange in systems of neighboring countries. Also, in our system they are the only intermediary power plants, i.e., connected to the system very quickly (within several seconds) to compensate for a sudden loss in production capacity due, e.g., to breakdown of a large turbine unit in a thermal electric power plant. And this power is even more costly than peak load power.

#### Hydroelectric Power Plant Expansion Trends

Hydroelectric power plants will be expanded in four basic groups:

A. Hydroelectric power plants on the Vistula, which in the future will form compact cascades of hydroelectric power plants operating by overtopping; the largest (from the standpoint of capacity and production) Lower Vistula Cascade (below the mouth of the Narew), then the Central Vistula Cascade (from the mouth of the San to the mouth of the Narew) and the Upper Vistula Cascade (from the mouth of the Przemsza to the mouth of the San). The power plants situated below the mouth of the Dunajec will form an overtopping system.

B. Peak load period power plants near multi-role storage reservoirs.

C. Pumped-storage power plants.

D. Small hydroelectric power plants, 5 MW and less, built near dam facilities, will be used for purposes other than for power production.

By the year 2000, hydroelectric power plants on the Vistula should give the electric power system relatively large production (approx. 6,100 GWh/yr), saving 4 million tons of hard coal each year. In addition, their large capacity (approx. 2,000 MW), because they will be centrally controlled by the State Power Distribution Control Agency, will make them one large peak load period control station. From the standpoint of national

fuel-power management, the entire Lower Vistula Cascade should be realized as soon as possible, for it represents over 1,300 MW capacity, at an annual production of almost 4,000 GWh a year.

Peak load plants, or peak load with pumping units, will be realized near large multi-role storage reservoirs, envisaged mainly for general water management, and will comprise a group of power plants operating principally at peak load period mode. They will be supplemented by a pumping unit only where suitable conditions permit. This will greatly increase their generating capacity and their adaptability for intermediary operation in the system.

The pumped-storage power plant group will include the largest hydroelectric plants that can be built in our country. After start-up of Porabka-Zar this year, and Zamowiec, which is now under construction and which should go into operation in 1980, we should list the Mloty (near Bystrzyca) power plant, 3 x 250 MW, and the Niewiastka-Huta (near Dynow on the San), 4 x 250 MW capacity. Towards the end of the nineties, the start-up of the largest hydroelectric power plant in the country is anticipated. This will be the Sobel pumped-storage plant in the Tylmanowa region, with a 3,500 to 4,000 MW generating capacity. The above pumped-storage power systems should ensure the country's electric power system the necessary control and operational safety, constituting the main base of intermediary-control power. At the same time, it will make it possible to exchange power with systems in neighboring countries during periods of the day and year that are advantageous to us.

### Small Hydroelectric Power Plants

Small installations, to which hydroelectric power plants with a generating capacity below 5,000 kW now belong, make up a very specific group of hydroelectric power plants. Special attention should be given to this problem because: First, local authorities can and should contribute greatly to their development, and second, because these power plants are a very reliable source of power for the localities closest to them, localities that are frequently supplied from peripheral and thus weak sections of the distribution network.

But if the small hydroelectric power plants are to be profitable, they must use the existing dam facilities, as, for example, weirs, dams, the differences in the levels between the closely situated lakes. These can be weirs from old mills or sawmills, weirs damming water for irrigation, and weirs and dams built for watersheds for industries or for agricultural purposes. Economic considerations dictate that, as a rule, heads higher than 3 meters be utilized.



In 1954, Central Administration of Rural Electrification inventoried all the small electric power plants and hydroplants in the country, existing outside the public-utility power industry.

At that time, a total of 6,330 [sic] active and 800 [sic] inactive plants were recorded.

They represented a total generating capacity of 68,600 kW. The average output of such a plant was 10 kW. The output of the largest plants did not exceed 200 kW. In most cases these were small flour mills. Plants up to 50 kW comprised 95.6 percent of these electric power plants and hydroplants; 51-100 kW plants made up 2.5 percent; and 100 kW+ plants, barely 0.6 percent of the total number of plants.

However, due to the improper approach to problems of the small hydropower industry, a decided majority of these plants were devastated. This brought with it an entire series of other undesirable effects, such as elimination of an enormous number of small reservoirs comprising the so-called "micro-storage". It burdened the national electric power system with additional loads and losses in the network. It burdened the country's transportation system with unnecessary timber and grain haulage (and then the sawn wood and flour to and from large mills and sawmills), etc.

Small hydroelectric plants, despite their small share in satisfying the country's power needs, fulfill many valuable tasks in the electric power system, namely:

- they save fuel (in the form of coal) for electric power production;
- they cause practically no losses in transmission or conversion because their output is used in the immediate vicinity;
- they can be a very reliable source of power for consumers who are sensitive to interruptions in electric power supply, e.g., breeding farms, etc.
- they can be a source of power for settlements and farms that have not yet been electrified because of difficulties in bringing in high-voltage lines (e.g., in mountainous terrain).

Although the cost of generating power in small hydroelectric power plants is much higher than in large hydropower installations and in large thermal electric power plants, nevertheless, in view of the role that they can play in the country's energy management, the small plants are entirely justified economically. By applying standardization in problems and in outfitting, both investment and utilization costs can be greatly reduced.



## Program of Action

The hydropower resources of the smaller rivers can be vastly utilized through four areas of activity:

I - building new hydroelectric power plants, adding them on to existing dam structures.

II - modernizing existing hydropower plants (e.g., at flour mills, sawmills, paper mills, etc., based on remodeling them into hydroelectric plants by installing electric generators.

III - constructing hydroelectric power plants near dam structures, first projected for other than power needs, e.g., for agricultural supply, municipal management, or water industry.

IV - modernizing old existing hydroelectric power plants, based on replacing old, totally wornout turbine units with new, high-output and high-efficiency units.

It is projected that, in principle, the realization of small hydroelectric power plants [SHPP], 300 kW and above, will be the responsibility of the Ministry of Power Industry and Atomic Energy. However, construction of SHPP, 300 kW plus, will be permitted by elements outside the public-utility power industry, as industrial power plants, particularly in those instances where all, or the larger part of the output of such power plants will be consumed on-site by the given production, industrial, or agricultural plant.

Realization of SHPP below 300 kW output should be prepared as a broad social program and economic activity of the local area, for which coordination and supervision should be the responsibility of the province offices. Expert assistance should be organized by the province departments of the Scientific and Technical Associations, organized in the Chief Technical Organization, through their Chambers of Experts.

The Ministry of Power Industry and Atomic Energy intends to organize information centers in several places in the country, on the construction of small hydroelectric power plants and on the modernization of existing hydropower plants.

The main guidelines for SHPP solutions are far-reaching simplification, full automation permitting service-free operation, and maximum reduction in types and sizes of turbine units that national industry must supply.

The laboratory research conducted at the Gdansk Institute of Technology and operational studies will determine the number of various sizes of turbine units and their absolute value for both of the above-mentioned types.

Design research work is now being conducted to prepare a complete type series of both types of turbines and the generators for them, which would comply with the design parameters for pressure head, capacity and power. Thus, after production of hydropower turbines and generators for SHPP is prepared and started up in selected domestic factories, a broad program for realization of SHPP throughout the entire country can be begun.

In addition to the thermal electric power plants under the Ministry of Power and Atomic Energy, there are 116 industrial hydroelectric power plants with a combined generating capacity of 1,327 MW and a production capacity, during an average hydrological year, of approximately 2.8 TWh.

Of this number, power plants operating on natural inflow produce approximately 1.7 TWh/yr, representing 14 percent utilization of hydropower resources, and pumped-storage power plants (including the newly started-up Porabka-Zar plant) produce approximately 1.1 TWh/yr.

The six largest hydroelectric power plants (Porabka-Zar, Wloclawek, Zydowo, Solina, Dychow and Roznow (each 50 MW-plus generating capacity) comprise 81 percent of total generating capacity; 19 power plants (5.50 MW) represent 10 percent of generating capacity; and the remaining 100 small hydroelectric plants (5 MW and below), represent only 9 percent of the generating capacity of public-utility hydroelectric power plants.

Outside the Ministry of Power Industry and Atomic Energy there are several small hydroelectric plants whose total capacity does not exceed 2 MW, and several hundred hydropower plants, i.e., plants in which a hydro turbine drives various production machines, largely equipment for milling grain.

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